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ARTICLES

COMMUNICATIONS

BOOK REVIEWS

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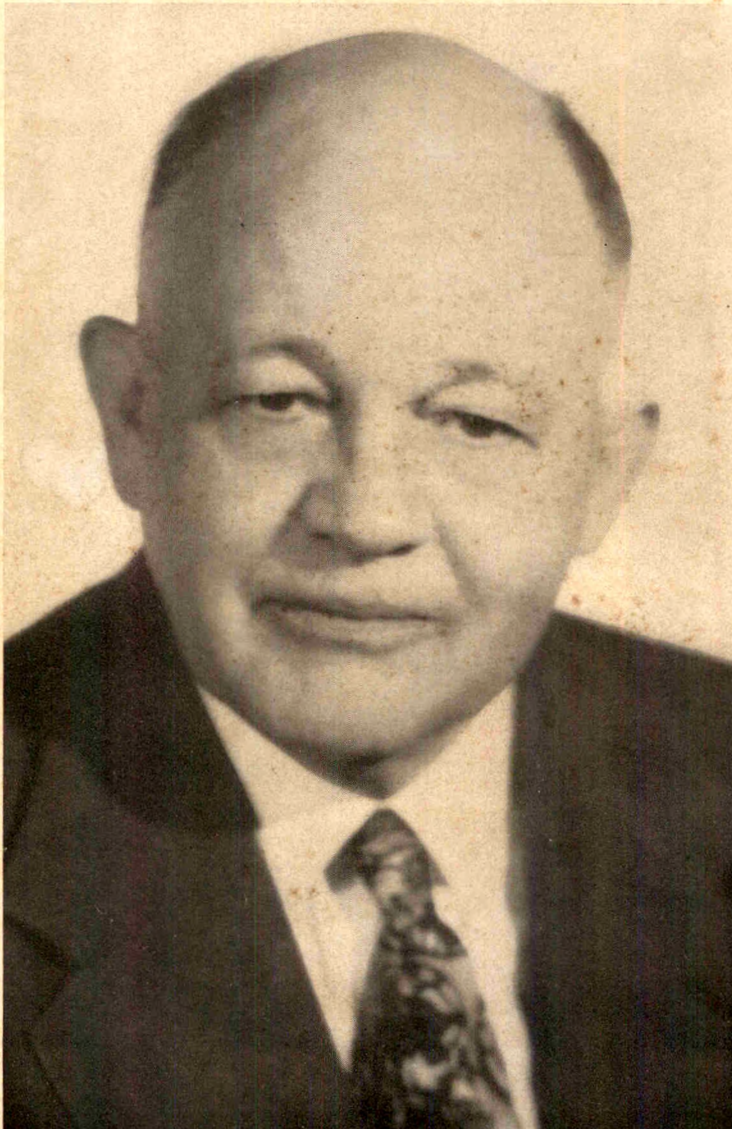
OTHER DEPARTMENTS

Number 58 of a series of photographs of past presidents of the Association



Edwin E. Witte

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The American Economic Review

VOLUME XLVII MARCH 1957 NUMBER ONE

ECONOMICS AND PUBLIC POLICY*

By EDWIN E. WITTE

I

It is well known that the original name for what is now generally called "economics" was "political economy." Most of the treatises written by the classical economists were books which they entitled *Political Economy*. At its first annual meeting in 1886, the American Economic Association adopted a four-point "platform," the first two and the last paragraphs of which read:[1]

1. We regard the state as an agency whose positive assistance is one of the indispensable conditions of human progress.
2. We believe that political economy as a science is still at an early stage of its development. While we appreciate the work of former economists, we look not so much to speculation as to the historical and statistical study of actual conditions of economic life for the satisfactory accomplishment of that development.

. . . .

4. In the study of industrial and commercial policy we take no partisan attitude. We believe in a progressive development of economic conditions, which must be met by a corresponding development of legislative policy.

And it also is noteworthy that the first publication of the American Economic Association was Henry C. Adams' essay on *The Relation of the State to Industrial Action*[2]—to my way of thinking still one of the soundest treatments of the subject.

* Presidential address delivered at the Sixty-ninth Annual Meeting of the American Economic Association, Cleveland, Ohio, December 28, 1956.

[1] For a more complete account of this early chapter in the history of the American Economic Association, see Joseph Dorfman, *The Economic Mind in American Civilization* (New York, 1949), Vol. III, pp. 205–12.

[2] *Publications of the American Economic Association*, Jan. 1887, I, 465–549; reprinted by the Columbia University Press, 1954, in *Relation of the State to Industrial Action and Economics and Jurisprudence* (edited by Joseph Dorfman).

There was strong opposition among economists to the original platform of the American Economic Association, despite its hedging on the most controversial issue of that day, the tariff. This opposition came principally from the supporters of unadulterated *laissez faire* who occupied the chairs of political economy in the largest universities. In 1887, the Association substituted for its platform the brief statement that its purpose was "the encouragement of economic research, especially the historical and statistical study of actual conditions." All of the dissenters, however, did not join the American Economic Association until, after a few years, it expressed complete neutrality on economic views and methods—a position it has consistently held ever since.

While neutral collectively, it is to the credit of economists that as individual scholars they have never ceased to be interested in questions of public policy. Few economists have held the view, which Charles A. Beard described as the dominant position in American thought around the turn of the century, and in accordance with which "government was looked upon as the badge of original sin, not to be mentioned in polite society." Economists of all schools of thought have often interested themselves in questions of public policy. Many of the major advances in economic theory have resulted almost directly from attempts to find solutions for practical public policy questions. This can be said of classical economics as well as of Keynesian and neoclassical economics, no less than of institutional economics. More economists today spend part of their active careers in government service than ever before. It is becoming commonplace that economists are in and out of government service several times during their lives and quite a number are working simultaneously for the government and in academic teaching or in research positions. Economists in the past have made significant contributions to the solution of practical problems of public policy and are doing so today.

But it is also true that economists have not received the recognition in the United States in the realm of public policy which they enjoy in other free countries. There has also developed much doubt whether economics should concern itself with problems of public policy. The clearest evidence of this is the change in the name of the social science of which we are students. What was once "political economy" became "economics" after the first world war, with but few exceptions.

While economists think, talk, and write about practical problems, their participation and influence is quite limited and it is doubtful whether it is increasing. Thousands of economists are employed in government. A former president of the American Economic Association is a distinguished U. S. Senator. A few other members of the Congress hold membership in the Association. The Council of Economic Advisers

is constituted of economists. Other economists are bureau chiefs and a somewhat larger number have held such positions. There are also a few members of the Association who hold elective or, more often, responsible appointive positions in state and local governments. Thousands of economists are civil service employees of the national, state, and local governments. Relatively few of these, however, are in major administrative positions and still fewer in decision-making spots. Most economists in government service are engaged in research studies, preparing reports and memoranda intended for the use of the decision-makers or the information of the public. They see the light of day only if superiors so decide and then usually with the authorship anonymous, at least as to most of the contributors. Many economists engaged in research work in the government are bitterly disappointed because they do not see what influence their studies have in practical affairs. Their research studies are valuable sources of information for academic students, but how much they influence policy decisions is debatable and doubtful. Beyond question, governmental research in economics and other social science fields is worth more than it costs, but its influence is seldom decisive.

Much lower in influence exerted, I believe, must be rated the pronouncements some academic economists make from time to time on issues of public policy. These often are lofty statements, as from Olympus, addressed to what is assumed to be a waiting America anxious to hear the words of economic wisdom on the practical issues of the day. Such pronouncements may have some influence. Politicians and manipulators of public opinion delight to cite as oracles known people who agree with them. But how much the noncommitted public is influenced is doubtful.

As I see it, the influence of economists on public affairs is principally that of scholars and teachers generally. This is the influence they exert upon their students and listeners and those who read what they have written. As John Maynard Keynes noted, the practical men of today often repeat what some professor or scribbler long since dead put into their heads.

This indirect influence obviously depends upon how well our students and readers grasp what we teach and the readiness with which they apply what they have learned to the practical public policy questions of the day. It is on this score that I have the most serious doubts about the contributions economists are making in the public policy field.

My reasons for doubts are that not much of what economists say and write seems to "stick with" students and readers. A large percentage of all college students today have some exposure to economics, particularly in the introductory or principles course. Most students thus exposed learn enough to pass this course. A smaller number, but still a

quite gratifying minority, make economics their major field of study and quite a few (although, perhaps, not enough to supply the to-be-anticipated demand for teachers of economics) go on with graduate work. But how much economics is learned "for keeps" from college courses is uncertain. Still more doubtful is whether college study of economics stimulates an abiding interest in the subject and gives the students the ability to think through economic problems.

As a former government official concerned with the settlement of labor disputes and since then as a privately selected labor arbitrator, I have been impressed by the fact that arguments based on economic principles are but seldom advanced by either party. Terms like "marginal utility," "labor mobility," "propensity to consume" and the like just do not occur in the presentation of actual labor cases. Yet the individuals presenting the arguments and some of the principals are often former students of economics—not uncommonly of not many years ago.

Similar failure to indicate that anything learned in courses in economics has "stuck" is all too evident in debates in legislative halls and on the political hustings, many of the participants in which, again, are former college students of economics. Some "eggheads" in public life have made fairly extensive use of economic principles, but have had little appeal to the public. Far more effective has been a repetition of platitudes about the economy, most of which have their origin with the public relations propagandists of business and other economic groups.

Economists frankly serving business, as increasing numbers are doing, apparently have been more successful in commanding an audience. But much of what many business economists, and the smaller number of labor economists, are saying cannot be regarded as original, amounting to little more than giving an aura of scholarship to what is essentially propaganda. By and large, business economics has been more influential than general economics. Business economists have become important advisers to great businesses, and some, as well as a few general economists, serve with distinction on boards of directors, and occasionally an economist becomes a business manager. Their influence on public affairs, however, also is quite limited.

II

Believing as I do that the original concept of economics, expressed in the old term "political economy" was sound, I inquire why economists have so little influence in public affairs. Among these reasons, I believe is the more recent attitude of looking upon government as belonging within the domain of the political scientist, and only on the periphery of economics.

This seems to me to greatly understate the importance of govern-

ment. Government and business or government's role in the economy has in the last quarter century become an important course subject in nearly all major universities. Almost without exception, however, textbooks written on this subject take a narrower view of the relations between government and business than the facts warrant. Some texts are pretty much treatises on the attempts to preserve competition through governmental action; others deal, more broadly, with all types of governmental regulation of private business. Some picture the economy as existing independently of government, which is reduced to an outside institution interfering with business in the interests of consumers or the general public. Government interference also is pictured as having been well nigh absent in the early history of our nation. And government regulation is discussed as still restricted mainly to public utilities and the fields of communication and transportation.

Studies sponsored by the Economic History Association in the last decade have established that this is a completely false account historically.[3] There never was a time when *laissez faire* prevailed in the United States. In the early days of the Republic there was rather more than less regulation of business than today. This was mainly local and state, rather than national regulation, but it was very extensive. Regulation has existed in the United States "from time immemorial," and substantially all businesses then existing were regulated. The Constitution was adopted not to give us a weaker but a stronger government. Not one line in that great instrument of freedom even remotely suggests a policy of *laissez faire*.

The American creed is not that of a government which is an oppressor but Lincoln's "a government of the people, by the people, and for the people." While wanting as little restriction as possible for the individual, Americans have always turned to government to help them when in economic difficulties. They have followed the principle, also expressed by Lincoln: "Government should do for a people what they cannot do themselves or that which they cannot do so well for themselves in their individual capacities."[4]

If all that government does is labeled "regulation," then government's role in the economy can be described as that of the regulator. To me it

[3] These include notable studies of the economic policies of the states prior to the Civil War, among them: Oscar and Mary Handlin, *Commonwealth: A Study of the Role of Government in the American Economy, Massachusetts, 1774–1861* (New York, 1947); Louis Hartz, *Economic Policy and Democratic Thought, 1776–1860* (Cambridge, 1948); Milton S. Heath, *Constructive Liberalism: The Role of the State in the Economic Development in Georgia to 1860* (Cambridge, 1954). Telling the same story are the many more specialized articles on the economic policies of the early United States by Carter Goodrich, president of the Economic History Association in 1956.

[4] "Fragment on Government," Nicolay and Hays, *Abraham Lincoln, Complete Works* (New York, 1890), Vol. I, p. 180.

seems preferable to use terms more accurately descriptive of the several things that government actually does in the economy. Confining "regulation" to direct government interference with private decision-making, government's activities in the economy go far beyond regulation.

To begin with, government is the rule maker and the umpire in the American system of free enterprise. Property, contract, patents, bankruptcy—in fact, all existing economic institutions—are defined by law. They represent bundles of rights and duties which may be modified and even terminated by constitutional processes. All basic economic institutions have undergone great changes in the course of American history. Property in human beings, at the time of the Constitution second in value only to land, has been abolished and the uses of many other types of property have been restricted in numerous respects. On the other hand, good will and other market expectations, almost unknown at the time of the Constitution, are now protected as property and collectively are of greater value than older, tangible forms of property. Changes in basic institutions must conform with constitutional limitations, but this has not prevented extensive changes. Such changes are still occurring and in all probability will continue to occur, as may be dictated by the needs and wisdom of the time.

Also most inadequately appreciated by economists has been the direct and indirect financial aid extended by government to many businesses in the United States throughout American history. Classical economics condemned "extraordinary encouragements" as well as "extraordinary restraints," but both have always existed in this country—and on a large scale. In recent years there has been a great outcry about government aids to agriculture. Historically, however, aids to other lines of business have been greater and may still be greater in the aggregate. The lands granted by Congress for the construction of the transcontinental railroads exceeded in area that of the entire State of Texas. Large aids by government, principally the state and local governments, were extended also for the construction of railroads in the older sections of the country—and earlier, of canals and turnpikes. Direct aids to shipping and ship building, airlines and aviation, mining and fisheries are more recent but also extensive. A large part of the capital for the development of new and risky industries has been supplied by government and never more extensively than in the present age. Whenever any major line of business has financial difficulties, it has turned to government for aid and, quite commonly, has received aid. Indirect aids, taking the form of protective tariffs, subsidies, loans, tax allowances, reduced mail rates, and similar privileges, have been no less important. Free enterprise, as we have known it, has always included a large amount of governmental aid to private business.

Government is the purchaser of a large part of the products of private industry and the supplier of many services vital to the economy. As Solomon Fabricant in his studies for the National Bureau has established, almost 10 per cent of all products of industry in recent years have been purchased by government, and a much higher percentage during the second world war.[5]

This is the age of the service state, in which government supplies many important services for the mass enjoyment of the people. Of these, defense is by far the most important. Education, highways, public welfare, and social security are very large service activities, as well as many others. Government as a producer is to some extent a competitor, but much more it is a stimulant to private business. The automobile, to cite but a single illustration, is credited with being indirectly the source of something like one-fifth of all employment today. But how large would be the automobile and related industries without the great public expenditures for the improved highways and the rapidly expanding outlays for parking facilities? A long list of businesses experiencing competition from government has been publicized by the Hoover Commission, but by far the most numerous instances it lists are those of government production of goods and services for its own use, not products produced for sale in the markets. Government as a purchaser, producer, and competitor is a field thus far left almost entirely by economists to politicians and propagandists, but which clearly merits much more attention from the point of view of its economic effects.

Government regulation of business has been less neglected and there is little need for stressing the importance of this aspect of political economy. Some regulation has existed from earliest times, but like everything else, regulation has changed with changing conditions. We no longer regulate chimney sweeps as Congress provided for in 1819, but we now regulate the beauticians and the barbers, the electricians and the plumbers, and, in some respects, all businesses.

More than in any other aspect of the government's role in the economy, economists long have been interested in its function as the preserver of competition. To the classical economists, competition was an all-sufficient regulator, once governmental encouragement of monopoly was ended. That view is not completely dead, but our antitrust and fair-trade-practices laws more and more have become regulatory legislation. While there are some doubts, particularly among business economists, about the wisdom of the underlying policies, it seems certain that competition and monopoly and government's re-

[5] Solomon Fabricant, *The Trend of Government Activity in the United States Since 1910* (New York, 1956).

sponsibilities in relation thereto, will continue to receive—as they should—a great deal of attention in public policy.

For some decades economists have devoted much attention to the government's responsibilities in relation to business stability and full employment, inflation and depression. Related are the government's control of the currency and its influence upon the volume of credit and the general level of the economy. More recent, but widespread, is interest in the factors promoting or retarding economic growth, which are greatly influenced by what government does. Economists have always appreciated the significance of government expenditures, taxes, and debts, and more so since the great depression and Keynesian economics. The relation of war to the economy has become increasingly significant in an age of great wars and ever-increasing preparation for future wars.

These are only some of the impacts of government on the economy and reasons why economics must concern itself with public affairs. John Maurice Clark, nearly thirty years ago, said in *The Social Control of Business:* "Control is an integral part of business, without which it would not be business at all. The one implies the other, and the two have grown together." Since then the interdependence of government and business certainly has increased. For an understanding of the economy, we must also understand government and appreciate the interrelation between government and business.

Government, however, is not all-powerful, and in a free society is certainly not the end objective of economic activity. In a democracy, government is only the largest and most inclusive of many associations of major importance. While it is the only organization which legally may use force to secure compliance with its decrees, it must operate essentially by consent. Ours is a volitional society in which the central problem is that of getting individuals to put forth their best efforts with a minimum of compulsion.

The end objective is individual and family welfare, much more than national strength, although the former promotes the latter. In the words of the late Msgr. John A. Ryan: "Industry exists for man, not man for industry"; and so also does government. It is the citizens, the human beings who constitute our society, who are central in our system of free enterprise and both the economy and the government exist to promote their welfare.

While our society is basically individualistic, it is also associational. One of the most characteristic differences between totalitarian and democratic governments lies in their respective attitudes toward voluntary associations among their citizens. Every totalitarian government ever known, whether of the right or the left, has either suppressed or brought under its complete control all associations within its borders.

Democracy, on the other hand, has encouraged free voluntary associations in the economic sphere, as well as in all other aspects of life. Dictators regard free voluntary associations as a challenge to their authority, while democracies regard them as instrumentalities to better promote and safeguard individual welfare, and thereby strengthen the entire society.

The American society from the outset has been one in which voluntary associations have played a large role. De Tocqueville, in his revealing observations on the United States in Jackson's day,[6] noted that Americans, with all their individualism, showed a remarkable capacity to associate with each other in their economic endeavors. Today, there are more associations in the United States than in any other land, and much more powerful organizations. We have nearly 500,000 business corporations and more than 50,000 labor unions, plus many thousands of trade associations, employers' associations, chambers of commerce, cooperatives, farmers' associations, and other similar economic organizations. Peter F. Drucker has characterized the America of today as being "enterprise directed," and holds that enterprise "is not the creature of the State" but "has its own law and rationale in its function."[7]

The fact that corporations differ so greatly in size and importance makes it difficult to grasp the significance of their remarkable growth. More than 90 per cent of the 500,000 corporations in this country are businesses differing from those conducted by individual entrepreneurs and partners only in the limited liability enjoyed by their owners and the life in perpetuity accorded them by law. But a thousand or so large corporations have very different and greater impacts on our society than the much more numerous individual entrepreneurs, partnerships, and small corporations. Not only do these large corporations transact directly half or more of all business in the United States and employ one-third of all labor in industrial employments, but they have many thousands of stockholders, suppliers, dealers, and distributors.

The present-day great corporation, moreover, is much more than merely a business organization. Through their public relations programs and other publicity media, corporations profoundly affect public opinion and in doing so also influence the outcome of political contests. In their dealings with business organizations outside the United States and to some extent indirectly with foreign governments, American corporations play a large role in international affairs. Particularly abroad but also in

[6] Alexis de Tocqueville, *De la Democratie en Amerique* (Brussels, 1840). Translation by Henry Reeve, with an Introduction by Henry Steel Commanger (New York, 1947).

[7] *The New Society: The Anatomy of the Industrial Order* (New York, 1950). See, also, A. A. Berle, Jr., *The 20th Century Capitalist Revolution* (New York, 1954) and Herrymon Mauer, *Great Enterprise: Growth and Behavior of the Big Corporation* (New York, 1955).

isolated areas in this country, corporations provide such services as housing, medical care, recreation, and education, which are merely incidental to their business activities, but often require a great deal of time from their executives and their boards of directors. Greatly on the credit side is what has been called "the public service revolution," manifested in the statements of many corporation executives emphasizing that service to all interested parties is an objective of American business, ranking ahead of the quest for ever larger profits.

On a former occasion I took the position,[8] that contrary to the fears of many economists and of large groups in the general public, American trade unions do not have nearly as great assets, influence, and power as have our large corporations. I still hold this view, but recognize that unions, too, profoundly affect the American way of life and in respects other than those narrowly considered economic. In its broader implications, the labor movement is a manifestation of the rise in the social order of the element in our population which was "born on the wrong side of the tracks" or whose ancestors were latecomers in this country. The advance of this group into the middle class appears to be one of the causes of the phenomenon, which Sumner H. Slichter and others have noted, of the growing moderation in the American views on public issues.

Many others of the numerous present-day associations also have great importance. What has been said about corporations and labor unions must suffice to illustrate both the significance of the associational element in our system of free enterprise and the desirability of a broader approach to many public policy questions than is customarily taken by theoretical economists.

Pointing in the same direction is "the managerial revolution." This is the divorce of control from ownership in the large corporation, which has all but become complete. In the large corporation, the functions usually still called those of the enterpreneur are now performed by professional managers. Management itself is a group, rather than an individual. Legally managers are employees and generally have but slight stock-ownership but they effectively run the corporation and at top levels they are pretty much self-perpetuating. Management has become an independent factor in production and often is the decisive element in the economic success of the corporation.[9]

The record of management, like that of the large corporations, has been one of great economic accomplishments. The United States has by far the largest group of professional managers, both in numbers and

[8] "The Role of Unions in Contemporary Society," *Indus. Lab. Rel. Rev.*, Oct. 1950, IV (1), 3–14.

[9] A recent good article developing this thought is Frederick Harbison, "Entrepreneurial Organization As a Factor in Economic Development," *Quart. Jour. Econ.*, Aug. 1956, LXX, 364–79.

proportionately to all industrial employees. Other technically trained personnel are also in excess demand, but managerial talent is most necessary of all and most difficult to develop. Both management and technology have been suggested to be basic factors in the economy on a par with the traditional land, labor, and capital. While not completely neglected, they have been assigned far too little importance by economists in explaining our productive accomplishments and possibilities and in considerations of economic growth and development on international levels.

III

John Williams in his presidential address in 1951[10] raised the question whether the thinking of economists leads and directs or merely follows changes in the environment. He concluded that most economic literature is a rationalization after the event. Pursuing his thought, it seems to me that at present, economists are doing but little leading in the domain of public policy. Further they have taken into account only very inadequately the many basic changes in the economy which have been occurring so rapidly in recent decades.

Twenty years ago an answer satisfying to many economists was given in Keynes' *General Theory* to the most pressing public policy question of the day, that of how to get out of the depression. With the changes in the environment since then, new questions have arisen and Keynesian economics seems less of a satisfying answer to all basic questions, although it is still very influential. Neoclassical economics probably has more followers than earlier, but gives few answers to current public policy questions. Institutional economics has regained some popularity after years of neglect and ridicule. But, to me, institutional economics seems more of a method of approach to public policy questions than an over-all economic theory.

While a majority will differ, it is my thought that the approach of the institutional economists has much to commend it. On another occasion, I described this approach as "a practical problems approach," with emphasis upon finding answers to the many new economic problems of the day.[11] John Williams—who, I suspect, would object to any identification with the institutional economists—expressed my thought in the statement that "economic theorizing . . . [is] pointless unless it is aimed at what to do," and further that the "pretension to universality . . . is the inescapable bane on theorizing."[12] I do not imply that others than institutional economists have not concerned themselves with practical

[10] "An Economist's Confessions," *Am. Econ. Rev.*, March 1952, XLII, 1–24.

[11] "Institutional Economics as Seen by an Institutional Economist," *So. Econ. Jour.*, Oct. 1954, XXI, 131–40.

[12] *Op. cit.*, p. 10.

problems. Present-day theorists do express themselves on practical public policy issues and advise the policy makers. Not only, however, are many of them somewhat apologetic in doing so, but greatly prefer to deal with universal truths which lend themselves to model building and mathematical reasoning.

Back of this attitude is not merely the quest for universality, but an overpowering desire to be scientific. In common with many other social scientists, economists as a group long for the exactitude of the natural sciences. The nearest approach to such precision seems to many to lie in the reduction of economic problems to mathematical equations and then in the application of the proven laws of mathematics to their solution. Justice Holmes, the great dissenter, once said: "The future belongs to the man of statistics and the master of economics."[13] But Holmes could not anticipate the present vogue among economists for mathematics, which has produced a situation in which many, perhaps a majority, of the members of the Association, like myself, cannot even read a large percentage of the articles published in the *Review* and other economic journals. A difficult specialized language has the advantages of appearing very learned and may afford some protection against witch-hunters, but it loses listeners and readers. I do not want to be understood as suggesting that articles with a good deal of mathematics in them should not be published in economic journals, but only that I would like to see more articles that I can read. A fundamental difficulty with the mathematical approach to economics is the frequent impossibility of taking account in the equations of all factors, particularly changing factors. Just as there is danger of superficiality in institutional economics, so there is danger of unreality in mathematical economics. Econometrics and mathematical economics have such value and hoped-for promise that they merit the position they have attained, in most major universities, of inclusion in the program of instruction for graduate students. But they fall far short of giving economics the precision of the natural sciences. Nor is there any other approach that offers greater hope for absolute precision.

While not decrying the econometricians or other economists who are trying to make economics an exact science, it seems to me very desirable that other economists should continue to pursue other methods in their attempts to gain a better understanding of the economy and in seeking correct answers to the practical problems of economic life. Man is more complex than material things and does not lend himself to the same sort of experimentation as do guinea pigs. In general controlled experiments are not possible in economics; accurate observation and reasoning from observed facts is as far as we can go in the discovery of truth. It is com-

[13] Quoted in Samuel F. Konefsky, *The Legacy of Holmes and Brandeis* (New York, 1956).

forting that many of the basic truths in the natural sciences were discovered by similar nonexact methods, long before the present accurate methods of measurement were known.

Although exact scientific measurements are impossible for the solution of many economic problems, a scientific attitude is a *sine qua non.* By that term I refer, first and foremost, to complete honesty and impartiality. Economists, like all others who merit the high distinction of being known as scholars and scientists, may never compromise with truth and must have the courage of their convictions. Falsifying, coloring, or twisting the truth is contemptible, whether it be done for compensation, to gain notoriety, or to curry favor. A scientific attitude demands an inquiring mind, a strong urge to know, and tireless industry to explore every aspect of the problem. It calls for the rechecking of results and a willingness to change opinions when the evidence warrants. It appears most favorably when accompanied by personal modesty and a high degree of fairness, manifested alike toward pioneers and predecessors, contemporaries and those holding variant views. It calls for thorough knowledge of what has been done before and for keeping abreast with current research. These are difficult standards to meet, but such an attitude is necessary and attainable, although the exactitude of the natural sciences is presently impossible and may never be realized.

Much more harmful than the quest for the certainty of the natural scientists is the attitude that economists should confine themselves to aspects of practical problems that are strictly within the domain of economics, defined as including little more than the price mechanism and equilibrium analysis. Extremists holding this position scoff at the very idea that anyone but an economist has anything worthwhile to say on the solution of practical economic problems. Related is the idea that the only worth-while answers to economic questions are to be found in applications of general economic theory.

A less extreme variant is the view that economists should deal only with the economic aspects of problems but should participate with other social scientists in interdisciplinary research. This calls for each group of social scientists tackling a given problem by its own methods and in its specialized language, followed by an interchange of views between all of the researchers. Through such a procedure a truer answer is expected than can be gotten from a one-discipline approach by economists or by any other group of social scientists. This position has something like official blessing in the action of the foundations in especially encouraging interdisciplinary research. No great discoveries have thus far come from such interdisciplinary research, which may mean only that it is too early to correctly appraise the results. Certain it is, that this is costly research, best suited to wealthy foundations, large universities,

or physically nearby institutions. Its greatest value may lie in acquainting scholars from different academic fields with the language and approaches of the other disciplines. That is not without importance, but is unsuited to public agencies needing prompt answers to practical questions and to economists in struggling institutions who have no established reputations.

The idea underlying interdisciplinary research is sound. Questions of public policy do not fall into the tight rubrics of academic disciplines. For the answers to practical questions more than one and often many academic disciplines need to be brought into the picture. There are no hard and fast lines separating economics from politics, law, sociology, psychology, and philosophy. Even technical matters, geographic facts, and certainly the historical and institutional background need to be taken into account by the economist seeking answers to practical problems. Economics is not timeless and placeless and is more than an exercise in logic or a mathematical problem. All social sciences blend into each other, as in fact do all elements of our culture. Economics has to do with the aspect of man concerned with the satisfaction of his material wants. But it is ever the whole man who acts in economic matters. To lose sight of this basic fact is but to grope for economic truth in a way akin to the study of the elephant by the blind men of the fable, not one of whom could get an even approximately correct picture of the great animal.

How to get a broad over-all view which also has depth is the $64 question (or to use a more up-to-date analogy, the correct answer to the final question which gives ownership to everything in the show). In my article on institutional economics I took the position that the practical economist needs to know his way about in all the social sciences, and that in addition he should be broadly cultured, with some bent toward the technical, in a mechanical age. I now recognize that this is a well-nigh impossible prescription for economists in this complex age. Few, if any, economists can be super Leonardo da Vincis, or Benjamin Franklins, or Thomas Jeffersons—not to mention the wisdom of Lincoln.

I certainly do not propose that study of practical economic problems should be restricted to supermen. Rather, I believe that every educated person, specifically everybody who regards himself as an economist, should interest himself in practical economic problems. While some economists may do better with abstract, over-all problems, the great majority will be well advised to deal with concrete questions which appear not to be too large for their capabilities and resources.

What is essential is not a mastery of all disciplines which may have something to contribute to the solution of economic problems, but an appreciation that economics does not afford all of the answers. This calls

for broadly trained, cultured economists, rather than narrow specialists. It is impossible for anyone to know beforehand the intricacies of all domains of knowledge which impinge on a given problem. Prior training can only equip the student with a realization that all aspects of a given problem need to be studied before a worthwhile answer will emerge. In the actual study of practical economic problems the researcher, and still less the administrator and policymaker, cannot stop at the bounds of what the theorist believes to be economics. He needs to become acquainted with everything that has bearing on the problem being studied, whether it be economics or anything else.

Aspects not deemed by most economists to be economics do have importance for the solution of many economic problems. Man's motivation in dealing with economic problems is not solely economic. The economic man is a fiction, but the whole man a reality. To gain economic ends, men resort to many practices which do not make sense from a purely economic point of view. Beliefs actually held are scarcely less important than what people ought to think.

Taking into account noneconomic aspects places a heavy responsibility on the economist who studies questions of public policy. He has to learn much that is new to him, including what often is an unfamiliar language. But he generally can get help from specialists in other disciplines, provided he appreciates the need for such help and knows from whom to inquire. It is true also that practical problems seldom involve all aspects of any academic discipline. To grasp noneconomic aspects no great advance knowledge of other disciplines is required, only a desire to understand the total setting and tireless study of the problem in its entirety, no matter where it may lead.

I would add two other requisites for fruitful study of economic policy questions. One is a genuine interest in the problem studied and zeal to bring about improvement and correction of what is wrong. The other is realization that institutions and conditions can be changed and that progress and improvement are possible. Without real enthusiasm, no study ever gets very far. Research which is merely part of the day's work that has to be done lacks the fire needed to make it significant. It is also my belief that for significant study of economic problems the incentive afforded by possible economic gain will but seldom prove adequate, as the returns are almost always small. Likewise, the motive of merely accurately describing what exists is sufficient only for the exceptional teacher, as also is that of trying to extol the existing institutions. The most significant work on practical economic problems has been done by people who have been inspired by a desire to change and improve what exists.

A final admonition to the would-be researcher and the most impor-

tant is to actually start and carry through a research project. A university colleague who has won fame as a novelist once told me: "Writers are of two kinds. One kind are those who plan and talk about writing; the others those who sit down at the typewriter and write." Having reached an age when most of my career is behind me, I recognize how little I have accomplished and say to my friends: "Avoid my mistake of putting off planned research and writing." With age, enthusiasm wanes, as does energy. Studies which do not get beyond the planning stage are but seldom worth anything, and unfinished studies rarely can be completed by anyone else. A scholar will always share knowledge with others, but the man who has done the research is likely to be the man best qualified to interpret it and to carry it to completion.

In common with most others who have discussed the subject, it is my conviction that economists should be encouraged to engage in research. Similarly, I believe that it is desirable that they should get practical experience in business and/or government, with the idea of later returning to teaching. I hold these views, in part, because I believe that research and practical experience are broadening and enrich teaching. I also believe that we need to find solutions for many economic problems to insure the further and rapid progress we ought to have.

I would direct much of this research to public policy questions. Particularly valuable, I believe, is field research. It is important for economists early to realize that not everything worth knowing about economics and practical public policy questions is to be found in books, or can be grasped by thinking about problems in a swivel chair, or arrived at by solving mathematical equations based on unproven assumptions. The advice John R. Commons always gave his students: "Do not only read and think but observe" is as valuable today as it was when I studied with him as a graduate student. Besides furnishing training in gathering original information, field research should prove most helpful in the discovery of new truths and in sweeping away unfounded beliefs.

Not everybody has talents which will bring fame in research. But I am of the opinion that useful economic research can be done by many more economists than do any research. Many of the practical problems of the day are narrower than the weighty matters principally discussed in meetings like this. Ph.D. theses are supposed to be original pieces of research and quite a few are creditable examples. However, it is tragic that many of the authors of these theses never complete any similar studies or publish anything. Subjects for profitable research are all about us. No practical question is too unimportant to merit study. The beginner, as well as the economist who gets no foundation or other financial support, is probably well advised to tackle problems which seem to him to be quite small. Usually, as small problems are studied

they grow larger; moreover, answers to small problems as well as to large ones are needed.

Anyone who engages in research always faces the possibility of failure. Even if no solutions are found, much may be gained. Study of problems has its own reward in the inner satisfaction it affords and the broadening influence it has. The natural scientists have come to regard the experiment that fails, if accurately performed, as but little less valuable than the one that succeeds. In Henry Van Dyke's delightful little essay "Alpenrosen and Goat's Milk,"[14] the story is told of the Swiss village festival in which the highpoint was the climbing of the greased pole. Youth after youth attempted the feat only to fail. Finally, the hero got to the top and received great plaudits. But as Van Dyke remarked, much of the credit belonged to those who preceded him and rubbed the grease off the pole.

IV

I believe that economics does have great possibilities and a promising future. To begin with, we will have far more students. More students will increase our problems, but also will be a great challenge and opportunity. There are now a million fewer people of college age than prior to the second world war, but above a million more students in colleges and universities. Enrollment figures are once more increasing and, if the present percentages going to college are maintained, will increase more than 50 per cent within less than fifteen years. There is every reason, moreover, to expect that the very pronounced trend toward a large percentage of young men and women actually going to college will continue. There are forecasts that within a generation as large a percentage of the people of college age will actually attend college as the present percentage of boys and girls of high school age enrolled in secondary schools. That percentage is now 88, compared with less than 15 per cent at the beginning of the century. College enrollments were less than 5 per cent in 1900; today, close to 30 per cent.

Many will view the expected increase in enrollments with alarm. It will prove more difficult to staff economics departments adequately with qualified teachers. There is even now a shortage of qualified faculty in some schools of business administration and in the economics departments of some small colleges. The number of graduate students in economics, excluding students from abroad, moreover, has been decreasing rather than increasing. More graduate students, including some who earn Ph.D. degrees, go into business. There is also some attrition in economics faculties by reason of the higher salaries in other comparable occupations. Whether the prospects of an increasing demand and a

[14] In *Little Rivers* (New York, 1911), pp. 165–214.

possibly declining supply of teachers of economics will result in increased salaries or in heavier teaching loads and more teaching by inadequately prepared assistants can be answered certainly only in the future.

In addition to increased full time enrollments, economists are confronted with increasing demands for their services in adult education. Through part-time instruction, conferences, and lectures, immense numbers of adults are getting some instruction on economic subjects. It is my view that responsibility for such teaching should not be shunted off entirely on half-trained, young instructors—although their youth and energy is a great asset in educational work of this type. Increased college enrollments, and growing demands in adult education, will add to the teaching responsibilities of economists.

I make no claims to pedagogical wisdom. While I have been a teacher for half of my adult life, I confess to some of the disdain which university professors display towards the professional educational-methods people—without real justification, I will add. But my experience as a university teacher and lecturer and as a civil service employee and an appointed official has given me some ideas which I hope are worth expressing, in view of the large educational task which confronts the economists in the period immediately ahead.

It has been said that the purpose of formal education—certainly of higher education—is not to give people knowledge but to get them to think. This is a truism, with which I, of course, agree. But I would add: "Not only to think , but to read and observe." Students and, still more, American adults read little that is not required or is not in picture or capsule form. Even among people doing economic research, it is a common occurrence that they often display ignorance of what has been done earlier on the subject. There may be a thrill in rediscovering independently what could be learned by reading, but it does seem a waste of time. Without depreciating visual instruction—which has great merit in mass education—I believe that it is sound counsel to urge upon all teachers of economics to insist upon wide reading, in the training both of graduate and undergraduate students. It is through such insistence upon reading that even when confronted with such large numbers of students as we are, we may hope to be able to acquaint them with different points of view and in the process stimulate thinking on the subject. Such a method also has the advantage of keeping the professor on his toes, which is essential for effective teaching.

Getting students to observe requires even greater skill on the part of the instructor. It is a method, however, of enlivening classroom discussion, particularly if the observations are related to what is presented in the lectures, text, and readings. For graduate students it is most desirable in connection with reports and theses. In many branches of eco-

nomics, field study seems to me well-nigh indispensable in the training of graduate students. If it can be guided so that the professor and the students work together on the same problems, an almost ideal relationship between teachers and students can be created.

These suggestions, I know, add to the work required of teachers of economics, in "handling" the large numbers of students the near future will bring. But few other efforts can be so rewarding in personal satisfactions, influence exerted, and friendships formed.

The increasing demands which teaching is making upon the academic economists operate to make incidental research more difficult. Even more they furnish an excuse to many for not attempting any original studies. On the other hand, far more funds from foundations and other sources are becoming available for research leaves for studies at home and abroad. Opportunities for temporary employment in government have not increased and many conditions continue to make government service unattractive. Employment by business with the idea of later returning to teaching offers increasing opportunities, but is subject to the drawback that it is hard to give up the larger business salaries. All told, however, opportunities for full-time research are distinctly better than ever before.

I am of the opinion that academic economists should go on research leaves when they have opportunity to do so and have a subject in which they are vitally interested and to the study of which it seems they can profitably devote a year or so. Generally, both the recipients of the grants and the institutions giving them a leave, will profit from such interruptions of academic teaching. But the recipients have a heavy obligation to complete the studies they undertake, in fairness to the donors and their own institutions, to say nothing about the harm they otherwise do to their reputations and to the profession.

Besides full-time leaves for research, I strongly believe in the study of original problems by teachers of economics on a part-time basis and even without any time allowances—although these are desirable. By some, such research can profitably be directed toward the theoretical aspects of economics. More generally, I believe, it can best be devoted to questions of practical public policy and to studies of the historical, institutional, and factual background of economic problems. There are many more problems in this domain with which the part-time researcher can hope to deal successfully than in the theoretical field.

There are serious difficulties which the would-be researcher must overcome. An obvious difficulty is that of finding the time for research, confronted, as are most economists, with overloaded teaching programs. There is also the problem that there are too few publication outlets for economic research, particularly on applied practical subjects. A very

serious handicap is the lack of appreciation in the profession and outside of it of the economist whose research does not produce earth-shaking results. Even knowing where to begin is not simple.

Suggestions which might prove helpful for economic research, particularly on practical public-policy questions, include these: Public agencies might well consider "farming out" research on economic problems to universities in the manner of the natural science agencies, far more than they are now doing. They also might prepare compendia on practical research subjects not urgently requiring immediate answers, with data on sources of information. Mature scholars could do the same and foundations profitably could aid them financially to make such reports.

The important matter of giving credit for research to the academic people who do such work is, first and foremost, a matter of recognition within the profession. Economists, like all other people, appreciate most the good opinion of their fellows. Yet the economists seem to be much more given to knocking than to boosting each other. The theorists scoff at institutionalists and vice versa. Worse is the fact that even men in the same department generally know little about the research their colleagues are doing. One small step toward improvement might be to give all members of the department an opportunity, at least once a year, to talk to their colleagues about the research in which they are engaged. In smaller institutions, the traditional general economics seminar might well serve this purpose; in larger institutions, regular or special department meetings. The regional economics associations, I believe, have their greatest value in affording a forum to younger and less well-known scholars. This is also one of the values and justifications for the growing number of allied social science associations which supplement the American Economic Association. While their existence has the tendency to make the programs of the A.E.A. meetings more theoretical and to give most of the places to the limited number of economists with reputations for original work in economic theory (most of whom are connected with a small number of large universities), the allied association affords opportunities to give recognition to the larger number of economists who work in applied fields and on practical problems.

Above all, I plead for tolerance among economists for differing points of view and varying fields of usefulness. Is it too much to expect or at least to hope that economists will adopt the attitude which prevails in the older professions? Lawyers, who put on a great show in battling each other in the court room and on the hustings, always speak of each other's reputations in terms of praise and will insist that a lawyer should be selected for every position which even remotely may require some speaking acquaintance with the law. Doctors seldom will expose errors

of other members of the profession. Economists, in contrast, often with sadistic glee devote a large part of their efforts to tearing down the reputations of other economists. This reflects more than the relative newness of economics and the apologetic attitude many economists have because they are not certain that our discipline is either a science or a profession. Assuredly, it involves bad manners, which as individuals we should guard against. A word of approval for work well done is far more helpful than the most logical criticism, which overlooks human sensibilities.

In the last analysis, research has its own rewards. There are few satisfactions as great as the sense of accomplishment which a scholar gets when he completes a well-done task. This is particularly true of research on public policy questions; for as Robert M. LaFollette, Sr. said, in an address at the University of Wisconsin, in the year I enrolled as a freshman, more than 50 years ago: "It is a glorious service, this service for country. Each one should count it a patriotic duty to build at least a part of his life into the life of his country, to do his share in the making of America according to the plan of the fathers."

Concluding this old man's counsel of advice, which makes no pretense at words of wisdom, I can do no better than to quote President Theodore Roosevelt's statement exalting the doer of deeds:

> It is not the critic who counts; not the man who points out how the strong man stumbled, or where the doer of deeds could have done them better. The credit belongs to the man who is actually in the arena; whose face is marred by dust and sweat and blood; who strives valiantly; who errs and comes up short again and again; who knows the great enthusiasms, the great devotions and spends himself in a worthy cause; who at the best knows in the end the triumphs of high achievement; and who at the worst, if he fails, at least fails while daring greatly; so that his place shall never be with those cold and timid souls who know neither defeat nor victory.[15]

[15] Quoted by President Franklin D. Roosevelt in his Madison Square Garden Address on the eve of the election of 1936.

THE SIMPLE ANALYTICS OF WELFARE MAXIMIZATION

By FRANCIS M. BATOR*

It appears, curiously enough, that there is nowhere in the literature a complete and concise nonmathematical treatment of the problem of welfare maximization in its "new welfare economics" aspects. It is the purpose of this exposition to fill this gap for the simplest statical and stationary situation.

Part I consists in a rigorous diagrammatic determination of the "best" configuration of inputs, outputs, and commodity distribution for a two-input, two-output, two-person situation, where furthermore all functions are of smooth curvature and where neoclassical generalized diminishing returns obtain in all but one dimension—returns to scale are assumed constant. Part II identifies the "price-wage-rent" configuration embedded in the maximum problem which would ensure that decentralized profit- and preference-maximizing behavior by atomistic competitors would sustain the maximum-welfare position. Part III explores the requirements on initial factor ownership if market-imputed (or "as if" market-imputed) income distribution is to be consistent with the commodity distribution required by the maximum-welfare solution. Part IV consists in brief comments on some technical ambiguities, *e.g.*, the presumption that all tangencies are internal; also on a number of feasible (and not so feasible) extensions: more inputs, outputs and households; elasticity in input supplies; joint and intermediate products; diminishing returns to scale; external interactions. The discussion is still stationary and neoclassical in spirit. Then, in Part V, the consequences of violating some of the neoclassical curvature assumptions are examined. Attention is given to the meaning, in a geometric context, of the "convexity" requirements of mathematical economics and to the significance of an important variety of nonconvexity—increasing returns to scale—for "real" market allocation, for Lange-Lerner type "as if" market allocation, and for the solubility of a maximum-of-welfare problem. Finally, Part VI contains some brief remarks on possible dynamical extensions. A note on the seminal literature concludes the paper.[1]

* The author, a member of the senior staff of the Center for International Studies, Massachusetts Institute of Technology, is indebted to R. S. Eckaus and R. M. Solow for suggestive comment.

[1] Anyone familiar with the modern literature will recognize my debt to the writings of Professor Samuelson. Reference is to be made, especially, to Chapter 8 of *Foundations of Economic*

I. *Inputs, Outputs and Commodity Distribution*

Take, as given:

(1) Two inelastically supplied, homogeneous and perfectly divisible inputs, labor-services (L) and land (D). This "Austrian" assumption does violate the full generality of the neoclassical model; elasticity in input supplies would make simple diagrammatic treatment impossible.

(2) Two production functions, $A=F_A(L_A, D_A)$, $N=F_N(L_N, D_N)$, one for each of the two homogeneous goods: apples (A) and nuts (N). The functions are of smooth curvature, exhibit constant returns to scale and diminishing marginal rates of substitution along any isoquant (*i.e.*, the isoquants are "convex" to the origin).

(3) Two ordinal preference functions, $U_X=f_X(A_X, N_X)$ and $U_Y=f_Y(A_Y, N_Y)$—sets of smooth indifference curves convex to the origin —one for X and one for Y. These reflect unambiguous and consistent preference orderings for each of the two individuals (X and Y) of all conceivable combinations of own-consumption of apples and nuts. For convenience we adopt for each function an arbitrary numerical index, U_X and U_Y, to identify the indifference curves. But the functions have no interpersonal implications whatever and for any one individual they only permit of statements to the effect that one situation is worse, indifferent or better than another. We do require consistency: if X prefers situation α to situation β and β to γ, then he must prefer α to γ; indifference curves must not cross. Also, satiation-type phenomena and Veblenesque or other "external" effects are ruled out.

(4) A social welfare function, $W=W(U_X, U_Y)$, that permits a unique preference-ordering of all possible states based only on the positions of both individuals in their own preference fields. It is this function that incorporates an ethical valuation of the relative "deservingness" of X and Y.

The problem is to determine the maximum-welfare values of labor input into apples (L_A), labor input into nuts (L_N), land input into apples (D_A), land input into nuts (D_N), of total production of apples (A) and nuts (N), and, last, of the distribution of apples and nuts between X and Y (A_X, N_X, A_Y, N_Y).

A. *From Endowments and Production Functions to the Production-Possibility Curve*

Construct an Edgeworth-Bowley box diagram, as in Figure 1, with horizontal and vertical dimensions just equal to the given supplies, re-

Analysis (Cambridge, 1947); to "Evaluation of Real National Income," *Oxford Econ. Papers*, Jan. 1950, II, 1–29; and to "Social Indifference Curves," *Quart. Jour. Econ.*, Feb. 1956, LXX, 1–22.

spectively, of D and L, and plot the isoquants for apples with the southwest corner as origin and those for nuts with origin at the northeast corner. Every point in the box represents six variables, L_A, L_N, D_A, D_N, A, N. The problem of production efficiency consists in finding the locus of points where any increase in the production of apples implies a necessary reduction in the output of nuts (and vice versa). The diagram shows that locus to consist in the points of tangency between the nut and apple isoquants (FF).

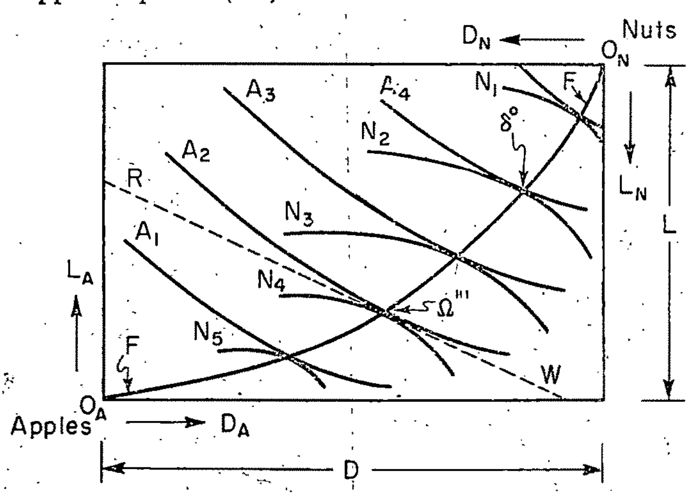

FIGURE 1

From this efficiency locus we can read off the maximal obtainable combinations of apples and nuts and plot these in the output (AN) space. Given our curvature assumptions we get the smooth concave-to-the-origin Pareto-efficient production-possibility curve $F'F'$ of Figure 2.[2] This curve, a consolidation of FF in Figure 1, represents input-output configurations such that the marginal rate of substitution (MRS) of labor for land in the production of any given quantity of apples—the absolute value of the slope of the apple isoquant—just equals the marginal rate of substitution of labor for land in the production of nuts.[3]

[2] This presumes, also, that the intrinsic factor intensities of A and N differ. If they did not, $F'F'$ would be a straight line—a harmless special case. (See V-3-c below.)

[3] In marginal productivity terms, MRS, at any point, of labor for land in, *e.g.* apple production—the absolute value (drop all minus signs) of the slope of the apple isoquant (Figure 1)—is equal to

$$\left[\frac{\text{Marginal Physical Product of Land}}{\text{Marginal Physical Product of Labor}}\right]$$

in apple production at that point. In the symbolism of the calculus

$$\left|\frac{\partial L_A}{\partial D_A}\right|_{\Delta A=0} = \left(\frac{\partial A}{\partial D_A}\right) \div \left(\frac{\partial A}{\partial L_A}\right).$$

The slope (again neglecting sign) at any point on the production-possibility curve of Figure 2, in turn, reflects the marginal rate of transformation (MRT) at that point of apples into nuts. It indicates precisely how many nuts can be produced by transferring land and labor from apple to nut production (at the margin), with optimal reallocation of inputs in the production of both goods so as to maintain the MRS-

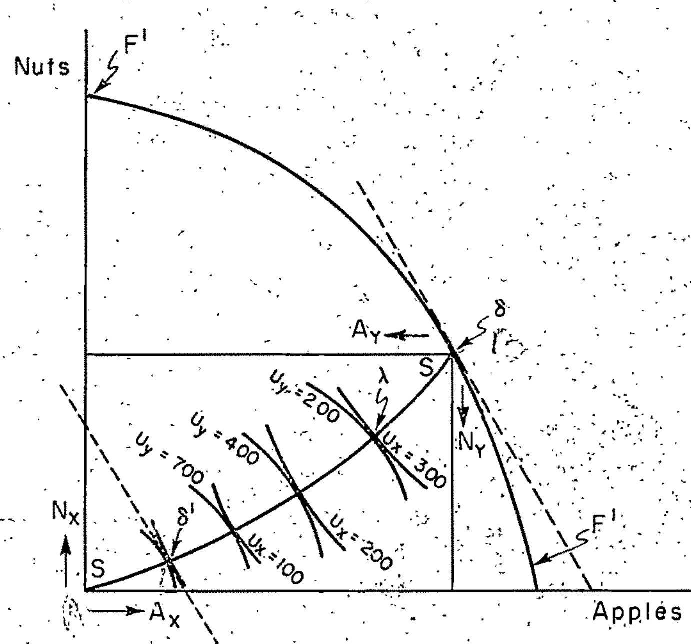

FIGURE 2

equality requirement of Figure 1. It is the marginal nut-cost of an "extra" apple—or the reciprocal of the marginal apple-cost of nuts.

B. *From the Production-Possibility Curve to the Utility-Possibility Frontier*

Pick any point, δ, on the production-possibility curve of Figure 2: it denotes a specific quantity of apples and nuts. Construct an Edgeworth-Bowley (trading) box with these precise dimensions by dropping from δ lines parallel to the axes as in Figure 2. Then draw in X's and Y's indifference maps, one with the southwest, the other with the northeast corner for origin. Every point in the box again fixes six variables: apples to X (A_X) and to Y (A_Y), nuts to X (N_X) and to Y (N_Y), and the "levels" of satisfaction of X and Y as measured by the ordinal indices U_X and U_Y which characterize the position of the point with respect to the two preference fields. For example, at λ in Figure 2, $U_X=300$, $U_Y=200$. Note again, however, that this 200 is incommensurate with

the 300: it does not imply that at λ X is in some sense better off than is Y (or indifferent, or worse off).

The problem of "exchange-efficiency" consists in finding that locus of feasible points within the trading box where any increase in X's satisfaction (U_X) implies a necessary reduction in the satisfaction of Y, (U_Y). Feasible in what sense? In the sense that we just exhaust the fixed apple-nut totals as denoted by δ. Again, the locus turns out to consist of the points of tangency, SS, and for precisely the same analytical reasons. Only now it is the marginal subjective rate of substitution of nuts for apples in providing a fixed level of satisfaction for X—the absolute slope of X's indifference curve—that is to be equated to the nut-apple MRS of Y, to the slope, that is, of *his* indifference curve.

From this exchange-efficiency locus,[4] SS, which is associated with the single production point δ, we can now read off the maximal combinations of U_X and U_Y obtainable from δ and plot these in utility (U_XU_Y) space ($S'S'$, Figure 3). Each such *point* δ in output space "maps" into a *line* in utility space—the U_XU_Y mix is sensitive to how the fixed totals of apples and nuts are distributed between X and Y.[5]

There is a possible short-cut, however. Given our curvature assumptions, we can trace out the grand utility-possibility frontier—the envelope—by using an efficiency relationship to pick just one point from each trading box contract curve SS associated with every output point δ. Go back to Figure 2. The slope of the production-possibility curve at δ has already been revealed as the marginal rate of transformation, via production, of apples into nuts. The (equalized) slopes of the two sets of indifference contours along the exchange-efficiency curve SS, in turn, represent the marginal rates of substitution of nuts for apples for psychic indifference (the same for X as for Y). The grand criterion for efficiency is that it be impossible by any shift in production *cum* exchange to increase U_X without reducing U_Y. Careful thought will suggest that this criterion is violated unless the marginal rate of transformation between apples and nuts as outputs—the slope at δ—just equals the common marginal rate of substitution of apples and nuts, as consumption "inputs," in providing psychic satisfaction.

[4] This is Edgeworth's contract curve, or what Boulding has aptly called the "conflict" curve—once on it, mutually advantageous trading is not possible and any move reflecting a gain to X implies a loss to Y.

[5] Each *point* in utility space, in turn, maps into a line in output-space. Not just one but many possible apple-nut combinations can satisfy a specified U_XU_Y requirement. It is this reciprocal point-line phenomenon that lies at the heart of Samuelson's proof of the nonexistence of community indifference curves such as would permit the derivation of demand curves for apples and nuts. The subjective "community" MRS between A and N for given fixed A and N, *e.g.*, at δ in Figure 2, would surely depend on how the A and N are distributed, *i.e.*, on which U_XU_Y point on SS is chosen. Hence the slope of a "joint" XY indifference curve at δ is not uniquely fixed by AN. (See citation [11] in bibliography.)

If, for example, at δ one can get two apples by diverting resources and reducing nut-output by one, a point on SS where the (equalized) marginal rate of substitution of apples for nuts along indifference curves is, *e.g.*, one to one, permits the following "arbitrage" operation. Shift land and labor so as to produce two more apples and one less nut. Then, leaving X undisturbed take away one nut from Y and replace it by one apple. By our assumption that MRS=1 both X and Y are left indifferent: U_X and U_Y remain unaltered. But we have an extra apple left over; since this permits raising U_X and/or U_Y, the initial situation was not on the U_XU_Y frontier.[6]

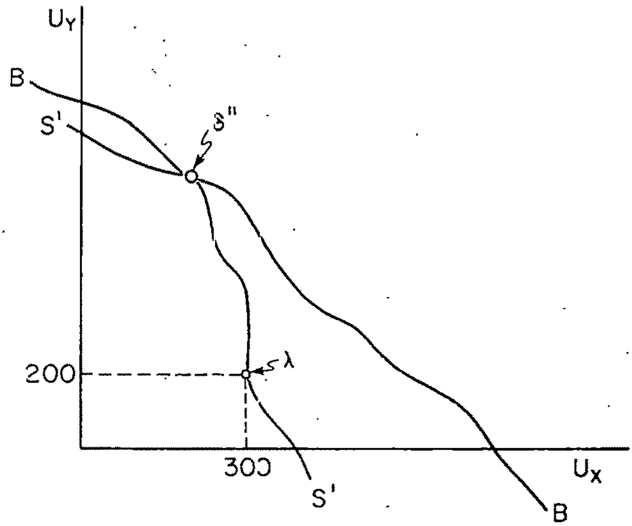

FIGURE 3

To be on the grand utility-possibility frontier (BB of Figure 3), then, MRT_δ must equal the (equalized) MRS of the indifference contours along the SS associated with δ. This requirement fixes the single U_XU_Y point on SS that lies on the "envelope" utility-possibility frontier, given the output point δ. Pick that point on SS, in fact, where the joint slope of the indifference curves is exactly parallel to the slope at δ of the production-possibility curve. In Figure 2 this point is at δ', which gives the one "efficient" U_XU_Y combination associated with the AN mix denoted by δ. This U_XU_Y combination can then be plotted as δ'' in Figure 3.[7]

[6] The above argument can be made perfectly rigorous in terms of the infinitesimal movements of the differential calculus.

[7] Never mind, here, about multiple optima. These could occur even with our special curvature assumptions. If, for example, both sets of indifference curves show paths of equal MRS

Repetition of this process for each point on the production-possibility curve—note that each such point requires a new trading box—will yield the grand utility-possibility frontier of Pareto-efficient input-output combinations, *BB*. Each point of this frontier gives the maximum of U_X for any given feasible level of U_Y and vice versa.

C. *From the Utility-Possibility Frontier to the "Constrained Bliss Point"*

But *BB*, the grand utility-possibility function, is a curve and not a point. Even after eliminating all combinations of inputs and outputs

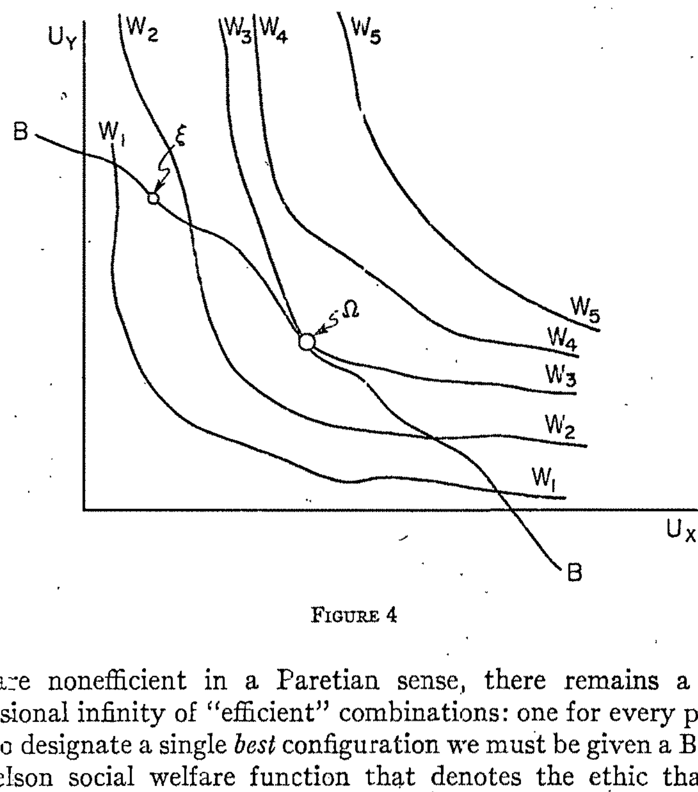

FIGURE 4

that are nonefficient in a Paretian sense, there remains a single-dimensional infinity of "efficient" combinations: one for every point on *BB*. To designate a single *best* configuration we must be given a Bergson-Samuelson social welfare function that denotes the ethic that is to "count" or whose implications we wish to study. Such a function—it could be yours, or mine, or Mossadegh's, though his is likely to be non-transitive—is intrinsically ascientific.[8] There are no considerations of

that coincide with straight lines from the origin and, further, if the two preference functions are so symmetrical as to give an SS_δ that hugs the diagonal of the trading box, then either every point on SS_δ will satisfy the MRS=MRT criterion, or none will. For discussion of these and related fine points see Parts IV and V.

[8] Though it may provide the anthropologist or psychologist with interesting material for scientific study.

economic efficiency that permit us to designate Crusoe's function, which calls for many apples and nuts for Crusoe and just a few for Friday, as economically superior to Friday's. Ultimate ethical valuations are involved.

Once given such a welfare function, in the form of a family of indifference contours in utility space, as in Figure 4, the problem becomes fully determinate.[9] "Welfare" is at a maximum where the utility-possibility envelope frontier BB touches the highest contour of the W-function.[10] In Figure 4, this occurs at Ω.

Note the unique quality of that point Ω. It is the only point, of all the points on the utility frontier BB, that has unambiguous normative or prescriptive significance. Pareto-efficient production and commodity-distribution—being on $F'F'$ and also on BB—is a necessary condition for a maximum of our kind of welfare function, but is not a sufficient condition.[11] The claim that any "efficient" point is better than "inefficient" configurations that lie inside BB is indefensible. It is true that given an "inefficient" point, there will exist *some* point or points on BB that represent an improvement; but there may well be many points on BB that would be worse rather than better. For example, in terms of the ethic denoted by the specific W-function of Figure 4, Ω on BB is better than any other feasible point. But the efficient point ξ is distinctly inferior to any inefficient point on or northeast of W_2. If I am X, and if my W-function, which reflects the usual dose of self-interest, is the test, "efficient" BB points that give a high U_Y and a very low U_X are clearly less desirable than lots of inefficient points of higher U_X.[12]

[9] In the absence of implicit income redistribution these curves cannot be transposed into output-space. They are not community indifference curves which would permit the derivation of demand schedules. See fn. 5 and 12, also IV-3.

[10] If there are several such points, never mind. If the "ethic" at hand is really indifferent, pick any one. If it doesn't matter, it doesn't matter.

[11] Note, however, that Pareto-efficiency is not even a necessary condition for a maximum of just any conceivable W-function. The form of our type function reflects a number of ethically loaded restrictions, *e.g.*, that individuals' preference functions are to "count," and count positively.

[12] Note, however, that no consistency requirements link my set of indifference curves with "my" W-function. The former reflects a personal preference ordering based only on own-consumption (and, in the more general case, own services supplied). The latter denotes also values which I hold as "citizen," and these need not be consistent with maximizing my satisfaction "*qua* consumer." X as citizen may prefer a state of less U_X and some U_Y to more U_X and zero U_Y. There is also an important analytical distinction. X's preference function is conceptually "observable": confronted by various relative price and income configurations his consumption responses will reveal its contours. His W-function, on the other hand, is not revealed by behavior, unless he be dictator, subjected by "nature" to binding constraints. In a sense only a society, considered as exhibiting a political consensus, has a W-function subject to empirical inference (*cf.* IV-3). The distinction—it has a Rousseauvian flavor—while useful, is of course arbitrary. Try it for a masochist; a Puritan. . . .

D. *From "Bliss Point" to "Best" Inputs, Outputs and Commodity-Distribution*

We can now retrace our steps. To Ω on BB in Figure 4, there corresponds just one point, Ω', on the production-possibility curve $F'F'$ in Figure 5. (We derived BB, point by point, from $F'F'$ of Figure 2: and the $F'F'$ of Figure 5 is copied from that of Figure 2.) Ω' fixes the output

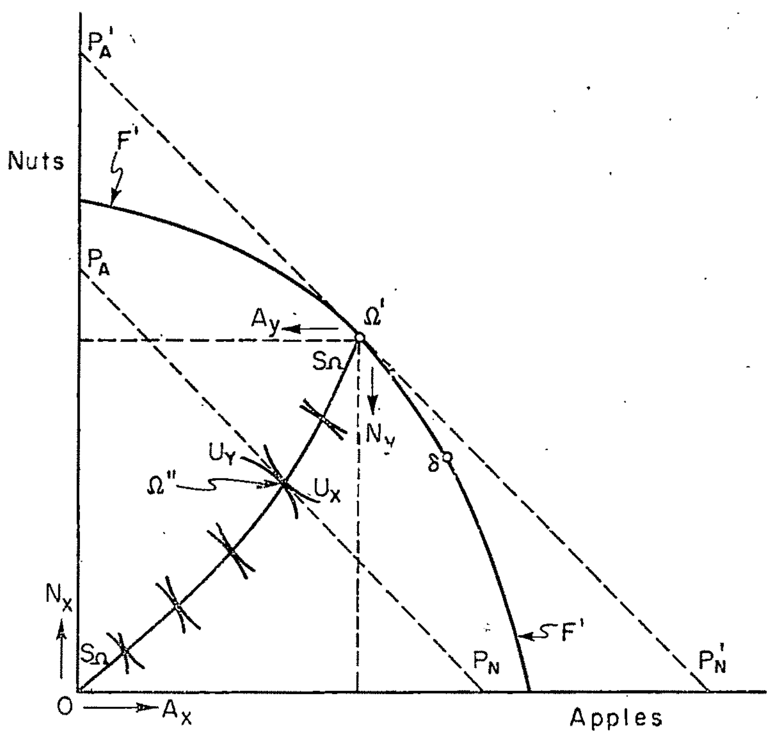

FIGURE 5

mix: A and N. Then, by examining the trading-box contract curve $S_\Omega S_\Omega$ associated with Ω' of $F'F'$, we can locate the one point where U_X and U_Y correspond to the coordinates of Ω in utility space. The equalized slope of the indifference curves will at that point, Ω'', just equal the slope of $F'F'$ at Ω'. Ω'' fixes the apple-nut distribution implied by the maximum of W: A_X, A_Y, N_X, and N_Y. Further, we can now locate the point Ω''' on the Pareto-efficient input locus, FF of Figure 1, that corresponds to Ω' of $F'F'$. It fixes the remaining variables, the factor allocations: L_A, D_A, L_N, and D_N. The maximum-welfare configuration is determinate. We have solved for the land and labor to be used in

apple and nut production, for the total output of apples and nuts, and for their distribution between X and Y.

II. *Prices, Wages and Rents*

The above is antiseptically independent of institutional context, notably of competitive market institutions. It could constitute an intellectual exercise for the often invoked man from Mars, in how "best" to make do with given resources. Yet implicit in the logic of this purely "technocratic" formulation, embedded in the problem as it were, is a set of constants which the economist will catch himself thinking of as prices. And wisely so. Because it happens—and this "duality" theorem is the kernel of modern welfare economics—that decentralized decisions in response to these "prices" by, or "as if" by, atomistic profit and satisfaction maximizers will result in just that constellation of inputs, outputs and commodity-distribution that our maximum of W requires.[13]

Can these constants—prices, wages, rents—be identified in our diagrammatic representations?[14] Only partially so. Two-dimensionality is partly at fault, but, as we shall see, a final indeterminacy is implied by the usual curvature assumptions themselves.[15] The diagrams will, however, take us part way, and a little algebra will do for the rest.

The exercise consists in finding a set of four constants associated with the solution values of the maximum problem that have meaning as the price of apples (p_A), the price of nuts (p_N), the wage rate of labor (w), and the rental rate of land (r).[16]

First, what can be said about w and r? Profit maximization by the individual producer implies that whatever output he may choose as most lucrative must be produced at a minimum total cost.[17] The ele-

[13] Note that this statement is neutral with respect to (1) genuine profit maximizers acting in "real" but perfectly competitive markets; (2) Lange-Lerner-type bureaucrats ("take prices as given and maximize or Siberia"); or (3) technicians using electronic machines and trying to devise efficient computing routines.

[14] To avoid institutional overtones, the theory literature usually attempts verbal disembodiment and refers to them as shadow-prices. The mathematically oriented, in turn, like to think of them as Lagrangean multipliers.

[15] These very assumptions render this last indeterminacy, that of the absolute price level, wholly inconsequential.

[16] Since we are still assuming that all the functions have neoclassical curvature properties, hence that, *e.g.*, the production-possibility curve, as derived, has to be concave to the origin, we can impose the *strong* condition on the constants that they exhibit optimality characteristics for genuine, though perfect, markets. It will turn out, however, that two progressively weaker conditions are possible, which permit of some nonconvexities (*e.g.*, increasing returns to scale), yet maintain for the constants some essentially price-like qualities. More on this in Part V.

[17] In our flow model, unencumbered by capital, this is equivalent to producing the chosen output with minimum expenditure on inputs.

mentary theory of the firm tells us that, for this condition to hold, the producer facing fixed input-prices—horizontal supply curves—must adjust his input mix until the marginal rate of substitution (MRS) of labor for land just equals the rent-to-wage ratio. It is easy to see the "arbitrage" possibilities if this condition is violated. If one can substitute one unit of L for two units of D, and maintain output constant, with $w=\$10$ and $r=\$10$, it surely reduces total cost to do so and keep doing so until any further reduction in D by one unit has to be matched, if output is not to fall, by adding no less than one unit of L. In the usual diagrammatic terms, then, the producer will cling to points of tangency between the isoquants and (iso-expenditure) lines whose absolute slope equals r/w.

Reversing the train of thought, the input blend denoted by the point Ω''' in Figure 1 implies a shadow r/w ratio that just equals the MRS of labor for land in the production of both apples and nuts at that point Ω'''. $\text{MRS}_{\Omega'''}$ is given by the (equalized) slopes of the isoquants at Ω'''. The implicit r/w, therefore, must equal the slope of the line RW that is tangent to (both) the isoquants at Ω'''.[18]

The slope of RW identifies the rent:wage ratio implied by the maximal configuration. Essentially analogous reasoning will establish the equalized slope of the indifference curves through Ω'', in Figure 5, as denoting the p_A/p_N ratio implied by the solution. X, as also Y, to maximize his own satisfaction as measured by U_x, must achieve whatever level of satisfaction his income will permit at a minimum expenditure. This requires that he choose an apple-nut mix such that the psychic marginal-rate-of-substitution between nuts and apples for indifference just equal p_A/p_N. He, and Y, will pick Ω'' only if p_A/p_N is equal to the absolute slope of the tangent (P_AP_N) at Ω''. This slope, therefore, fixes the Ω-value of p_A/p_N.[19]

Note that this makes p_A/p_N equal to the slope also of the production-possibility curve $F'F'$ at Ω'.[20] This is as it should be. If $p_A/p_N=10$, *i.e.*, if one apple is "worth" ten nuts on the market, it would be odd in-

[18] Again, absolute values of these slopes are implied throughout the argument. Recall from footnote 3 that the labor-for-land MRS, the absolute slope of the isoquants at Ω''' as given by RO_A/WO_A, is equal to the

$$\left[\frac{\text{Marginal Physical Product of Land}}{\text{Marginal Physical Product of Labor}}\right] \text{ratio.}$$

Our shadow r/w, then, turns out to be just equal to that ratio.

[19] The price-ratio relates reciprocally to the axes: $p_A/p_N=P_AO/P_NO$ in Figure 5. Along, *e.g.*, X's indifference curve (U_X at Ω'') a rise in p_A/p_N, *i.e.*, a steepening of P_AP_N, results in a substitution by X of nuts for apples; ditto for Y.

[20] Remember, in choosing the one point on $S_\Omega S_\Omega$ that would lie on the envelope in utility space, we chose the point where the indifference curve slopes just equaled the marginal rate of transformation (see p. 27 above).

deed, in our frictionlessly efficient world of perfect knowledge, if the marginal rate of transformation of nuts into apples, via production, were different from ten-to-one. Producers would not in fact produce the apple-nut combination of Ω' if p_A/p_N differed from MRT at Ω'.

We have identified the r/w and p_A/p_N implied by the maximum of W. These two constancies provide two equations to solve for the four unknown prices. Unfortunately this is as far as the two-dimensional diagrammatics will take us. None of the diagrams permit easy identification of the relationship between the input prices and the output prices. Yet such a relationship is surely implied. By the theory of the firm we know that the profit-maximizing producer facing a constant price for his product—the horizontal demand curve of the perfectly competitive firm—will expand output up to where his extra revenue for an additional unit of output, *i.e.*, the price, just equals the marginal cost of producing that output.[21] And marginal cost, in turn, is sensitive to r and w.

It would be easy to show the implied price-wage or price-rent relationships by introducing marginal productivity notions. Profit maximization requires that the quantity of each input hired be increased up to the point where its marginal physical product times the price of the extra output, just equals the price of the added input. Since these marginal physical productivities are determinate curvature properties of the production functions, this rule provides a third relationship, one between an output price and an input price.

Alternatively, given our assumption that production functions show constant returns to scale, we can make use of Euler's "product exhaustion" theorem. Its economic content is that if constant returns to scale prevails, the total as-if-market-imputed income of the factors of production just "exhausts" the total value of the product. This means, simply, that $wL+rD=p_AA+p_NN$, and it provides a third relationship between w, r, p_A and p_N for the Ω-values of L, D, A and N.[22]

At any rate, the maximal solution implies a third price-equation, hence we can express three of the prices in terms of the fourth. But what of the fourth? This is indeterminate, given the characteristics of the model. In a frictionless world of perfect certainty, where, for example, nobody would think of holding such a thing as money, only *relative*

[21] Never mind here the "total" requirement—that this price exceed unit cost—if the real-life profit-seeking producer is to produce at all. More on this in Part V.

[22] The condition also holds for each firm. In a competitive and constant-returns-to-scale world the profit-maximum position is one of zero profit: total revenue will just equal total cost. It should be said, however, that use of the Euler theorem to gain a relationship between input price and output price involves a measure of sleight of hand. It is only as a consequence of the relationships between price and marginal productivity (*cf.* the preceding paragraph) that the theorem assures equality of income with value of product.

prices matter. The three equations establish the proportions among them implied by the maximum position, and the absolute values are of no import. If the $p_A:p_N:w:r$ proportions implied by Ω are 20:15:50:75, profit and satisfaction maximizers will make the input-output-consumption decisions required for the maximum-of-W irrespective of whether the absolute levels of these prices happen to be just 20:15:50:75, or twice, or one-half, or 50 times this set of numbers. This is the implication of the fact that for the maximum problem only the various transformation and substitution *ratios* matter. In all that follows we shall simply posit that nuts are established as the unit of account, hence that $p_N=1$. This then makes p_A, w and r fully determinate constants.[23]

Summarizing: We have identified diagrammatically two of the three shadow-price relationships implied by the solution to the welfare-maximum problem and have established, in a slightly more roundabout way, the existence of the third. The purpose was to demonstrate the existence, at least in our idealized neoclassical model, of a set of constants embedded in the "technocratic" maximum-of-welfare problem, that can be viewed as competitive market prices.[24] In what sense? In the sense that decentralized decisions in response to these constants, by, or "as if" by, atomistic profit and satisfaction maximizers will result in just that configuration of inputs, outputs and commodity-distribution that the maximum of our W requires.

III. *Factor Ownership and Income Distribution*

We have said nothing, so far, of how X and Y "pay" for their apples and nuts, or of who "owns" and supplies the labor and the land. As was indicated above, the assumption of constant returns to scale assures that at the maximum welfare position total income will equal total value of output, and that total revenue from the sale of apples (nuts) will just equal total expenditures for inputs by the producers of apples (nuts). Also, the "solution" implies definite "purchase" of apples and of nuts both by X and by Y. But nothing ensures that the initial "ownership" of labor-hours and of land is such that w times the labor-hours supplied by X, wL_X, plus r times the land supplied by X, rD_X—X's income—will suffice to cover his purchases as required by Ω'', *i.e.*, $p_AA_X+p_NN_X$; similarly for Y. There does exist some Pareto-efficient solution of inputs, outputs and distribution that satisfies the "income = outgo" condition for both individuals for any arbitrary pattern of ownership of the "means of production"—a solution, that is, that will place the system somewhere on the grand utility-possibility envelope

[23] For the possibility of inessential indeterminacies, however, see Part IV-2.

[24] On the existence of such a set of shadow prices in the kinky and flat-surfaced world of linear programming, see Part V, below.

frontier (BB in Figure 4). But only by the sheerest accident will that point on BB be better in terms of my W-function, or Thomas Jefferson's, or that of a "political consensus," than a multidimensional infinity of other points *on or off* BB. As emphasized above, only one point on BB can have ultimate normative, prescriptive significance: Ω; and only some special ownership patterns of land and of labor-services will place a market system with an "as imputed" distribution of income at that special point.[25]

The above is of especial interest in evaluating the optimality characteristics of market institutions in an environment of private property ownership. But the problem is not irrelevant even where all nonhuman means of production are vested in the community, hence where the proceeds of nonwage income are distributed independently of marginal productivity, marginal-rate-of-substitution considerations. If labor-services are not absolutely homogeneous—if some people are brawny and dumb and others skinny and clever, not to speak of "educated"—income distribution will be sensitive to the initial endowment of these qualities of mind and body and skill relative to the need for them. And again, only a very low probability accident would give a configuration consistent with any particular W-function's Ω.[26]

Even our homogeneous-labor world cannot entirely beg this issue. It is not enough to assume that producers are indifferent between an hour of X's as against an hour of Y's labor-services. It is also required that the total supply of labor-hours per accounting period be so divided between X and Y as to split total wage payments in a particular way, depending on land ownership and on the income distribution called for by Ω. This may require that X supply, *e.g.*, 75 per cent of total L; each man working $\frac{1}{2}L$ hours may well not do.[27]

But all this is diversion. For our noninstitutional purposes it is sufficient to determine the particular L_X, D_X, L_Y and D_Y that are consistent

[25] It is of course possible to break the link between factor ownership and "final" income distribution by means of interpersonal transfers. Moreover, if such transfers are effected by means of costless lump-sum devices—never mind how feasible—then it is possible, in concept, to attain the Ω-implied distribution irrespective of market-imputations. But no decentralized price-market-type "game" can reveal the pattern of taxes and transfers that would maximize a particular W-function. "Central" calculation—implicit or explicit—is unavoidable.

[26] If slavery were the rule and I could sell the capitalized value of my expected lifetime services, the distinction between ownership of labor and that of land would blur. Except in an "Austrian" world, however, it would not vanish. As long as men retain a measure of control over the quality and time-shape of their own services, there will always remain an incentive problem.

[27] All this is based on the "Austrian" assumption that labor is supplied inelastically; further, that such inelasticity is due not to external compulsion, but rather to sharp "corners" in the preference-fields of X and Y in relation to work-leisure choices. More than this, the W-function must not be sensitive to variations in the $L_X L_Y$ mix except as these influence income distribution.

with Ω, given market-imputed, or "as if" market-imputed, distribution. Unfortunately the diagrams used in Part I again fail, but the algebra is simple. It is required that:

$$wL_X + rD_X = p_A A_X + p_N N_X,$$

and

$$wL_Y + rD_Y = p_A A_Y + p_N N_Y,$$

for the already-solved-for maximal Ω-values of A_X, N_X, A_Y, N_Y, p_A, p_N, w and r. Together with $L_X+L_Y=L$ and $D_X+D_Y=D$, we appear to have four equations to solve for the four unknowns: L_X, L_Y, D_X and D_Y. It turns out, however, that one of these is not independent. The sum of the first two, that *total* incomes equal *total* value of product, is implied by Euler's theorem taken jointly with the marginal productivity conditions that give the solution for the eight variables, A_X, N_X, A_Y, . . . which are here taken as known. Hence, we have only three independent equations. This is as it should be. It means only that with our curvature assumptions we can, within limits, fix one of the four endowments more or less arbitrarily and still so allocate the rest as to satisfy the household budget equations.

So much for the income-distribution aspects of the problem. These have relevance primarily for market-imputed income distribution; but such relevance does not depend on "private" ownership of nonlabor means of production. Note, incidentally, that only with the arbitrary "Austrian" assumption of fixed supplies of total inputs can one first solve "simultaneously" for inputs, outputs and commodity-distribution, and only subsequently superimpose on this solution the ownership and money-income distribution problem. If L_X, D_X, L_Y, D_Y, hence L and D were assumed sensitive to w, r, the p's and household income levels, the dimensions of the production-box of Figure 1, hence the position of the production-possibility curve of Figures 2 and 5, etc., would interdepend with the final solution values of L_X, D_X, L_Y and D_Y. We would then have to solve the full problem as a set of simultaneous equations from the raw data: production functions, tastes (this time with an axis for leisure, or many axes for many differently irksome kinds of labor), and the W-function. Three (or more) dimensional diagrams would be needed for a geometrical solution.

IV. *Some Extensions*

We have demonstrated the solution of the maximum problem of modern welfare economics in context of the simplest statical and stationary neoclassical model. Many generalizations and elaborations suggest themselves, even if one remains strictly neoclassical and restricts oneself to a steady-state situation where none of the data change and

no questions about "how the system gets there" are permitted to intrude. To comment on just a few:

1. The problem could well be solved for many households, many goods, and many factors: it has received complete and rigorous treatment in the literature. Of course the diagrammatics would not do; elementary calculus becomes essential. But the qualitative characteristics of the solution of the m by n by q case are precisely those of the 2 by 2 by 2. The same marginal rate of transformation and substitution conditions characterize the solution, only now in many directions. Nothing new or surprising happens.[28]

2. The solution did skirt one set of difficulties that were not explicitly ruled out by assumption. We tacitly assumed that the two sets of isoquants would provide a smooth locus of "internal" tangencies, FF, in the production box of Figure 1; similarly, that we would get such an "internal" SS in the trading boxes of Figures 2 and 5. Nothing in our

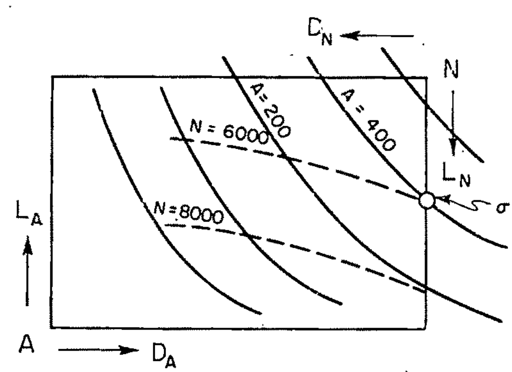

FIGURE 6

assumptions guarantees that this should be so. What if the locus of maximum A's for given feasible N's, should occur not at points of strict tangency *inside* the box, but at what the mathematician would call corner-tangencies along the edges of the box? Figure 6 illustrates this possibility. The maximum feasible output of A, for $N=6000$, occurs at σ, where $A=400$; but at σ the two isoquants are not strictly tangent (they touch but have different slopes). The economic meaning of this is simple. With endowments as indicated by the dimensions of the production box in Figure 6, and with technology as denoted by the isoquants, it is not possible to reallocate inputs until the MRS of labor for

[28] Rigorous general treatment of the $m\times n\times q$ situation does highlight a number of analytical fine points that are of interest to the pure theorist, e.g., the difficulties encountered if the number of factors exceeds the number of goods. But the qualitative economics is the same. For a full treatment from a nonnormative point of view, see P. A. Samuelson, "Prices of Factors and Goods in General Equilibrium," *Rev. Econ. Stud.*, 1953–1954, XXI (1), No. 54, 1–20.

land is the same in apple as in nut production. This is because apple technology (as depicted) is so land-using relative to nut production that the

$$\left[\frac{\text{marginal productivity of land}}{\text{marginal productivity of labor}}\right] \text{ratio}$$

in apple production exceeds that in nut production even when, as at σ, *all* land is devoted to apples.

Space precludes further analysis of such corner-tangency phenomena. They reflect the possibility that the maximum-welfare solution may require that not every input be used in producing every output (*e.g.*, no land in nut production or no brain surgeons in coal mining), and may even render one of the inputs a "free good," so that its total use will not add up to the total available supply. Let it suffice to assert that by formulating the maximum conditions, not in terms of *equalities* of various slopes, but rather in terms of *inequalities*; by explicit statement of the proper second-order "rate-of-change-of-slope" conditions; and by allowing inequalities in the factor-balance conditions (*e.g.*, $L_A + L_N \leqq L$), such phenomena of bumping into the axes can be handled; further, that only inessential indeterminacies occur in the implied shadow-price configuration.[29]

[29] All this can perhaps be made clearer by two examples. The essential requirement for A_σ to be at a maximum for $N=6000$ is that the intersection at the boundary be as in Figure 6 rather than as in Figure 7. In the latter, σ' gives a minimum of A for $N=6000$; the true maximum is at σ''. The distinction between σ in 6 and σ' in 7 is between the relative rates of change of the two MRS's. The price indeterminacy implied by the maximum, *i.e.*, the fact that σ is consistent with an r/w that lies anywhere between the two isoquants, turns out to be inessential. A second example concerns the theory of the firm. It has been argued that if the marginal cost curve has vertical gaps and the price-line hits one of these gaps, then the $MC=p$ condition is indeterminate, hence that the theory is no good. As has been pointed out in the advanced literature (*e.g.*, by R. L. Bishop, in "Cost Discontinuities . . . " *Am. Econ. Rev.*, Sept. 1948, XXXVIII, 607–17) this is incorrect: What is important is that at smaller than equilibrium output MC be less than price and at higher outputs MC exceed price. It is true, but quite harmless to the theory, that such a situation does leave a range of indeterminacy in the price

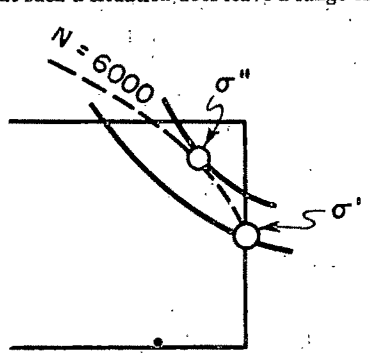

FIGURE 7

3. We stressed, above, the nonexistence of *community* indifference contours such as would provide a unique ranking, for the community as a whole, of various output combinations.[30] Individual marginal rates of substitution between, *e.g.*, apples and silk shirts, equalized along a trading-box contract curve to give a "community" MRS, are likely to be sensitive to the distribution of income[31] between gourmets and dandies; accordingly, community MRS at a given point in commodity space, *i.e.*, the slope of a curve of community indifference, will vary with movements along the associated utility-possibility curve. However, once the most desirable $U_X U_Y$ combination for a given package of A and N is fixed, MRS at that AN-point becomes determinate. It follows, as recently pointed out and proved by Samuelson,[32] that if the observed community continuously redistributes "incomes" in utopian lump-sum fashion so as to maximize, in utility space, over the W-function implied by a political consensus, then there does exist, in output space, a determinate *social* indifference function which provides a ranking for the community as a whole of all conceivable output combinations. This function, which yields conventionally convex social indifference contours, can be treated as though a single mind were engaged in maximizing it. Moreover, in concept and if granted the premise of continuous redistribution, its contours are subject to empirical inference from observed price-market data.

This existence theorem justifies the use of *social* indifference maps—maps "corrected" for distribution—in handling problems of production efficiency, international trade, etc.—a substantial analytical convenience.[33] More important, it provides a conceptual foundation, however abstract, for prescription based not on just any arbitrary ethic, but rather on the particular ethic revealed by a society as reflecting its own political consensus.[34]

4. It is useful, and in a mathematical treatment not difficult, to drop the "Austrian" assumption of inelastically supplied inputs, and intro-

that will elicit *that* level of output. Such phenomena do change the mathematics of computation. Inequalities cannot in general be used to eliminate unknowns by simple substitution. On all this, see the literature of linear programming (*e.g.*, citations [10] and [13]).

[30] See fn. 5.

[31] In terms of abstract purchasing power.

[32] See citation [11].

[33] Note, however, that none of this eliminates the need for a W-function: social indifference contours are a convex function of individual taste patterns of the usual ordinal variety taken jointly with an implicit or explicit W-function of "regular" content and curvature. Further, no ultimate superiority attaches to the W-function implied by a particular political consensus. One may disapprove of the power relationships on which such consensus rests, etc.

[34] Needless to say, feasibility is not here at issue. Even on this level of abstraction, however, matters become much more difficult once account is taken of the fact that the world is not stationary.

duce leisure-work choices.[35] The analytical effect is to sensitize the production-possibility curve to the psychic sensibilities—the preference functions—of individuals. Note that the empirical sense of doing so is not confined to an institutional or ethical context of nonimposed choice. A dictator, too, has to take account of such choices, if only because of feasibility limitations on coercion.

5. We assumed away joint-product situations. This is convenient for manipulation but hardly essential; the results can be generalized to cover most kinds of jointness. It turns out, in fact, that in dynamical models with capital stocks, one means for taking account of the durability of such stocks is to allow for joint products. A process requiring a hydraulic press "produces" both stamped metal parts and a "one-year-older" hydraulic press.

6. In our system the distinction between inputs (L, D) and outputs (A, N) could be taken for granted. But the distinction is clear only in a world of completely vertically-integrated producers, all hiring "primary" nonproduced inputs and producing "final" consumable goods and services. In a Leontief-like system that allows for inter-producer transactions and intermediate products, many outputs: electricity, steel, corn, beef, trucks, etc., are simultaneously inputs. It is of interest, and also feasible, to generalize the analysis to take account of, *e.g.*, coal being used not only to heat houses, but to produce steel required in the production of mining machines designed for the production of coal. Moreover, none of the essential qualitative characteristics of our maximum problem is violated by such generalization.[36]

7. What if instead of assuming that production functions show constant returns to scale, we permit diminishing returns to proportional expansion of inputs? This could be due either to inherent nonlinearities in the physics and topography of the universe, or to the existence of some unaccounted-for but significant input in limited, finite-elastic supply.[37]

[35] If we assume only one commodity, say apples, and replace the second good by leisure (or by negative labor input); and if we let the second-good production function be a simple linear relation, our previous geometry will portray the simplest goods-leisure situation.

[36] Analytically, this is done by designating all produced goods as X_1, X_2, X_3 . . . . The gross production of, *e.g.*, X_1 has two kinds of uses: It is partly used up as an input in the production of X_2, X_3 . . . and perhaps of X_1 (the automobile industry is a major user of automobiles). What remains is available for household consumption. The production functions have X's on the right- as well as the left-hand side.

[37] If "output" varies as the surface area of some solid body and "input" as its cubic-volume, a doubling of input will less than double output—this is an example of the first kind. A typical example of the second is the instance where the production function for fishing does not include an axis for the "amount" of lake, hence where beyond a certain point doubling of man-hours, boats, etc. less than doubles the output. There is a slightly futile literature on whether the first kind could or could not exist without some element of the second. If *every* input is really

Diminishing returns to scale, as distinct from increasing returns, does not give rise to serious trouble, either for the analytical solubility of the system, or for the market-significance of the intrinsic price-wage-rent constants. It does introduce some ambiguities, however. For one thing, the "value" of output will exceed the total of market-imputed income. This makes intuitive sense in terms of the "unaccounted-scarce-factor" explanation of decreasing returns; the residual unimputed value of output reflects the income "due" the "hidden" factor. If that factor were treated explicitly and given an axis in the production-function diagram, returns would no longer diminish—since, on this view, the relative inexpansibility of that input gave rise to decreasing returns to scale to begin with—and the difficulty would vanish.[38]

In a market context, this suggests the explicit introduction of firms as distinct from industries. In our constant-returns-to-scale world the number of apple- or nut-producing firms could be assumed indeterminate. Every firm could be assumed able to produce any output up to A_Ω (or N_Ω) at constant unit cost. In fact, if we had a convenient way of handling incipient monopoly behavior, such as by positing frictionless entry of new firms, we could simply think of one giant firm as producing all the required apples (nuts). Such a firm would be compelled, nevertheless, to behave as though it were an "atomistic" competitor, *i.e.*, prevented from exploiting the tilt in the demand curve, by incipient competitors ready instantaneously to jump into the fray at the slightest sign of profit.

It is, however, natural, at least in a context of market institutions, to think of decreasing returns to scale, as associated with the qualitatively and quantitatively scarce entrepreneurial entity that defines the firm but is not explicitly treated as an input. Then, as apple production expands, relatively less efficient entrepreneurs are pulled into production—the total cost curve of the "last" producer and the associated shadow price of apples become progressively higher—and the intramarginal firms make "profits" due directly to the scarcity value of the entrepreneurial qualities of their "entrepreneurs." The number of firms, their inputs and outputs, are determinate. The last firm just breaks even at the solution-value of the shadow-price.[39]

doubled, so say the proponents of one view, output *must* double. The very vehemence of the assertion suggests the truth, to wit, that it is conceptually impossible to disprove it by reference to empirical evidence. Luckily, the distinction is not only arbitrary—it depends on what one puts on the axes of the production-function diagram and what is built into the curvature of the production surface; it is also quite unimportant. One can think of the phenomenon as one will—nothing will change.

[38] The fact that the "hidden scarce factor" view is heuristically useful does not, however, strengthen its pretension to status as a hypothesis about reality.

[39] More precisely, the "next" firm in line could not break even. This takes care of discontinuity.

At any rate, no serious damage is done to the statical system by decreasing returns to scale. When it is a matter of actually computing a maximum problem the loss of linearity is painful, but the trouble is in the mathematics.[40]

8. There is one kind of complication that does vitiate the results. We have assumed throughout that there exists no *direct* interaction among producers, among households, and between producers and households—that there are no (nonpecuniary) external economies or diseconomies of production and consumption. The assumption is reflected in four characteristics of the production functions and the preference functions:

a. The output of apples was assumed uniquely determined by the quantities of land and labor applied to apple production—A was assumed insensitive to the inputs and outputs of the nut industry; similarly for nuts. This voids the possibility that the apple production function might shift as a consequence of movements along the nut production function, *i.e.*, that for given D_A and L_A, A may vary with N, L_N and D_N. The stock example of such a "technological external economy" (or diseconomy) is the beekeeper whose honey output will increase, other things equal, if the neighboring apple producer expands *his* output (hence his apple blossom "supply").[41] The very pastoral quality of the example suggests that in a statical context such direct interaction among producers—interaction that is not reflected by prices—is probably rare. To the extent that it does exist, it reflects some "hidden" inputs or outputs (*e.g.*, apple blossoms), the benefits or costs of which are not (easily) appropriated by market institutions.

It should be emphasized that the assertion that such phenomena are empirically unimportant is defensible only if we rule out nonreversible dynamical phenomena. Once we introduce changes in knowledge, for example, or investment in changing the quality of the labor force via training, "external" effects become very important indeed.[42] But on our

[40] It should perhaps be repeated, however, that there remains considerable ambiguity about how the imbalance between income and outlay in decreasing-returns-to-scale situations is best treated in a general equilibrium setup.

[41] The other type of externality treated in the neoclassical literature, the type Jacob Viner labeled "pecuniary," does not in itself affect the results. It consists in sensitivity of input prices to industry output, though not to the output of single firms. External pecuniary economies (as distinct from diseconomies) do, however, signal the existence of either *technological* external economies of the sort discussed here, or of internal economies among supplier firms. These last reflect increasing returns to scale along production functions—a most troublesome state discussed at length in Part V.

[42] The full "benefits" of most changes in "knowledge," of most "ideas," are not easily captured by the originator, even with strong patent and copyright protection. If, then, the energy

stratospheric level of abstraction such considerations are out of order.

b. The "happiness" of X, as measured by U_X, was assumed uniquely determined by his own consumption of apples and nuts. He was permitted no sensitivity to his neighbor's (Y's) consumption, and vice versa. This rules out not only Veblenesque "keeping up with . . ." effects, but such phenomena as Y tossing in sleepless fury due to X's "consumption" of midnight television shows; or X's temperance sensibilities being outraged by Y's quiet and solitary consumption of Scotch. Nobody with experience of a "neighborhood" will argue that such things are illusory, but it is not very fruitful to take account of them in a formal maximizing setup.[43]

c. X and Y were assumed insensitive, also, to the input-output configuration of producers, except as this affected consumption choices. Insensitivity to the allocation of their own working time is subsumed in the "Austrian" assumption, but more is required. Y's wife must not be driven frantic by factory soot, nor X irritated by an "efficiently" located factory spoiling his view.

d. There is still a fourth kind of externality: X's satisfaction may be influenced not only by his own job, but by Y's as well. Many values associated with job-satisfaction—status, power, and the like—are sensitive to one's *relative* position, not only as consumer, but as supplier of one's services in production. The "Austrian" assumption whereby U_X and U_Y are functions only of consumption possibilities, voids this type of interaction also.

Could direct interaction phenomena be introduced into a formal maximizing system, and if so, at what cost? As regards the analytical solubility of some maximum-of-W problem, there is no necessary reason why not. The mathematics of proving the existence or nonexistence of a "solution," or of a unique and stable "solution," or the task of devising a computational routine that will track down such a solution should one exist, may become unmanageable. But the problem need not be rendered meaningless by such phenomena.

Unfortunately that is saying very little indeed, except on the level of metaphysics. Those qualities of the system that are of particular interest to the economist—(i) that the solution implies a series of "efficiency

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and resources devoted to "creating new knowledge" are sensitive to private cost-benefit calculation, some potential for social gain may well be lost because such calculation will not correctly account for cost and benefit to society at large. All this is complicated by the peculiarity of "knowledge" as a scarce resource: unlike most other scarcities, just because there is more for you there is not necessarily less for me. As for training of labor: the social benefit accrues over the lifetime services of the trainee; the private benefit to the producer accrues until the man quits to go to work for a competitor.

[43] For an important exception, however, see fn. 44 below.

conditions," the Pareto marginal-rate-of-substitution conditions, which are necessary for the maximum of a wide variety of W-functions, and (ii) that there exists a correspondence between the optimal values of the variables and those generated by a system of (perfect) market institutions *cum* redistribution—those qualities are apt either to blur or vanish with "direct interaction." Most varieties of such interaction destroy the "duality" of the system: the constants embedded in the maximum problem, if any, lose significance as prices, wages, rents. They will not correctly account for all the "costs" and "benefits" to which the welfare function in hand is sensitive.[44]

In general, then, most formal models rule out such phenomena. There is no doubt that by so doing they abstract from some important aspects of reality. But theorizing consists in just such abstraction; no theory attempts to exhaust all of reality. The question of what kinds of very real complications to introduce into a formal maximizing setup has answers only in terms of the strategy of theorizing or in terms of the requirements of particular and concrete problems. For many purposes it is useful and interesting to explore the implications of maximizing in a "world" where no such direct interactions exist.

V. *Relaxing the Curvature Assumptions: Kinks and Nonconvexities*

None of the above qualifications and generalizations violate the fundamentally neoclassical character of the model. What happens if we relinquish some of the nice curvature properties of the functions?

1. We required that the production functions and the indifference curves have well-defined and continuous curvatures—no sharp corners or kinks such as cause indeterminacy in marginal rates of substitution. Such smooth curvatures permit the use of the calculus, hence are mathematically convenient for larger than 2 by 2 by 2 models. They are, however, not essential to the economic content of the results. The analysis has been translated—and in part independently re-invented—for a world of flat-faced, sharp-cornered, production functions: Linear programming, more formally known as activity analysis, is the resulting

[44] It should not be concluded, however, that the different types of direct interaction are all equally damaging. All will spoil market performance, almost by definition; but some, at least, permit of formal maximizing treatment such as will yield efficiency conditions analogous to those of Part I—conditions that properly account for full social costs and benefits. So-called "public goods," *e.g.*, national defense, which give rise to direct interaction since by definition their consumption is joint—more for X means not less but more for Y—are an important example. Maximizing yields MRS conditions that bear intriguing correspondence to those which characterize ordinary private-good situations. But these very MRS conditions serve to reveal the failure of duality. (Samuelson's is again the original and definitive treatment. See citation [12].)

body of theory.[45] All the efficiency conditions have their counterparts in such a system, and the existence of implicit "prices" embedded in the maximum problem is, if anything, even more striking.[46]

2. Easing of the neoclassical requirement that functions be smooth is not only painless; in the development of analytical economics it has resulted in exciting new insights. Unfortunately, however, the next step is very painful indeed. In our original assumptions we required that returns to scale for proportional expansion of inputs be constant (or at least nonincreasing) and that isoquants and indifference curves be "convex to the origin." These requirements guarantee a condition that the mathematicians call *convexity*. The violation of this condition, as by allowing increasing returns to scale in production—due, if you wish, to the inherent physics and topography of the universe or to lumpiness and indivisibilities—makes for serious difficulties.

The essence of convexity, a concept that plays a crucial role in mathematical economics, is rather simple. Take a single isoquant such as MM in Figure 8a. It denotes the minimum inputs of L and D for the production of 100 apples, hence it is just the boundary of all technologically feasible input combinations that can produce 100 apples. Only points on MM are both feasible and technologically *efficient*, but any point within the shaded region is *feasible:* nobody can prevent me from wasting L or D. On the other hand, no point on the origin side of MM is feasible for an output of 100 apples: given the laws of physics, etc., it is impossible to do better. *Mathematical convexity obtains if a straight line connecting any two feasible points does not anywhere pass outside the set of feasible points.* A little experimentation will show that such is the case in Figure 8a. In Figure 8b, however, where the isoquant is of "queer" curvature—MRS of L for D increases—the line connecting, *e.g.*, the feasible points γ and ϕ does pass outside the "feasible" shaded area. Note, incidentally, that an isoquant of the linear programming variety, as in Figure 8c, is "convex"—this is why the generalization of (1) above was painless.[47]

What kind of trouble does nonconvexity create? In the case of concave-to-the-origin isoquants, *i.e.*, nonconvex isoquants, the difficulty is

[45] Isoquants in such a setup consist of linearly additive combinations of processes, each process being defined as requiring absolutely fixed input and output proportions. This gives isoquants that look like that in Figure 8c.

[46] A little diagrammatic experimentation will show that the geometric techniques of Part I remain fully adequate.

[47] It is important not to confuse mathematical convexity with curvature that appears "convex to the origin." Mathematical convexity is a property of *sets* of points, and the set of feasible output points bounded by a production-possibility curve, for instance, is convex if and only if the production-possibility curve itself is "*concave* to the origin" (or a straight line). Test this by the rule which defines convexity.

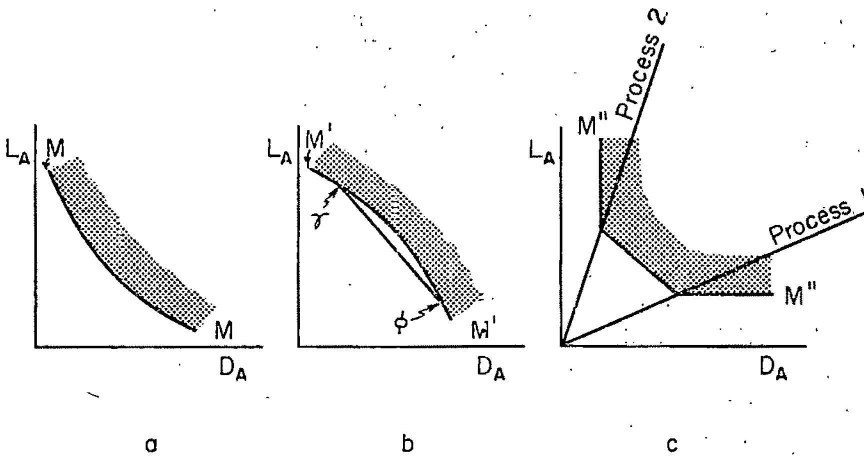

FIGURE 8

easy to see. Look back at Figure 1 and imagine that the old nut-isoquants are really those of apple producers, hence oriented to the southwest, and vice versa for nuts. Examination of the diagram will show that the locus of tangencies, FF, is now a locus of minimum combinations of A and N. Hence the rule that MRS's be equalized will result in input combinations that give a minimum of N for specified A.[48]

3. This is not the occasion for extensive analysis of convexity problems. It might be useful, however, to examine one very important variety of nonconvexity: increasing returns to scale in production. Geometrically, increasing returns to scale is denoted by isoquants that are closer and closer together for outward movement along any ray from

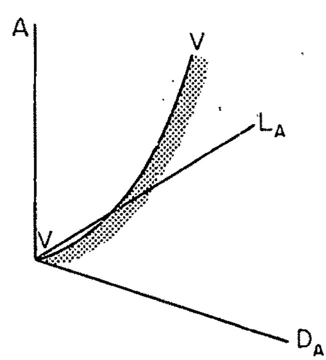

FIGURE 9

[48] A minimum, that is, subject to the requirement that no input be "wasted" from an engineering point of view, *i.e.*, that each single producer be on the production function as given by the engineer.

the origin: to double output, you less than double the inputs. Note that the isoquants still bound convex sets in the LD plane (they are still as in Figure 8a). But in the third or output dimension of a two-input, one-output production surface, slices by vertical planes through the origin perpendicular to LD will cut the production surface in such a way as to give a boundary such as VV in Figure 9. It is evident that VV bounds a nonconvex set of feasible points, so the full three-dimensional set of feasible input-output points is not convex.

The effect of such nonconvexity in input-output space can be classified with respect to its possible implications for (a) the slopes of producers' average cost (AC) curves; (b) for the slopes of marginal cost (MC) curves; (c) for the curvature of the production-possibility curve.

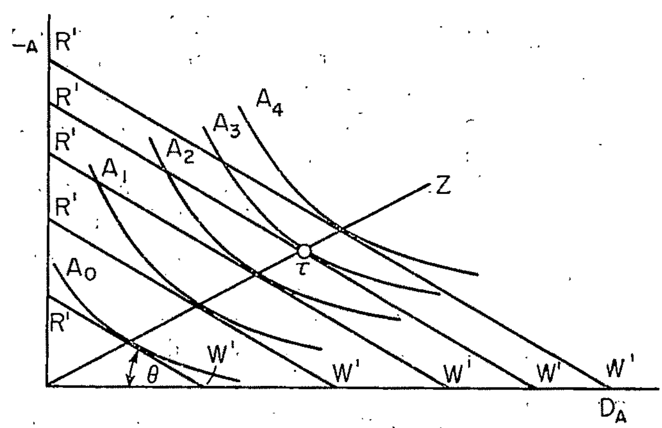

FIGURE 10

a. *Increasing returns to scale and* AC *curves*. It is a necessary consequence of increasing returns to scale that at the maximal configuration of inputs, outputs and input prices, producers' AC curves decline with increasing output. By the definition of increasing returns to scale at a given point τ of a production function, successive isoquants in the neighborhood of τ lie closer and closer together for movement "north-east" along the ray from the origin through τ (Z in Figure 10). As Figure 10 is drawn, the ray Z happens also to correspond to an expansion path for the particular r/w ratio denoted by the family of isocost lines $R'W'$: each $R'W'$ is tangent to an isoquant along Z. Given $r/w = |\text{tangent } \theta|$, a profit-maximizing apple producer will calculate his minimum total cost for various levels of output from input-output points along Z. But along Z the equal cost $R'W'$ tangents in the neighborhood of τ lie closer and closer together for increasing output, as do the isoquants. This implies that the increase in total cost for equal

successive increments in output declines. *Ergo*, the AC curve at τ for $r/w = |\text{tangent } \theta|$ must be falling.

Suppose the expansion path for $r/w = |\text{tangent } \theta|$ happened not to correspond to the ray Z, but only to cross it at τ. The intersection of A_4 with Z would not then mark the minimum-cost input-mix for an output of A_4, hence the increase in minimized total cost between A_3 and A_4 would be even less than in Figure 10: the negative effect on AC would be reinforced. The point is, simply, that if for movement along a ray from the origin cost per unit of output declines, AC will decline even more should production at minimized total cost call for changes in the input-mix, *i.e.*, departure from the ray Z.

What, then, if the maximum-of-W input-output combination required of this particular producer is denoted by the point τ? It has just been shown that AC at τ is falling. A falling AC implies a marginal cost curve (MC) that lies *below* the average. But if τ is the Ω'''-point, the shadow-p_A will just equal MC of τ. It follows that the maximum-of-W configuration requires $p_A < AC$, *i.e.*, perpetual losses. Losses, however, are incompatible with real life (perfect) markets; hence where increasing returns to scale prevails correspondence between market-directed and W-maximizing allocation fails. In an institutional context where producers go out of business if profits are negative, markets will not do.[49]

Increasing returns to scale has also a "macro" consequence that is associated with $p < AC$. For constant returns to scale, we cited Euler's theorem as assuring that total factor incomes will just equal total value of output. In increasing-returns-to-scale situations, total imputed factor incomes will exceed the total value of output: $rD + wL > p_A A + p_N N$.[50]

b. *Increasing returns to scale and* MC *curves*. Where nonconvexity of the increasing-returns-to-scale variety results in falling AC curves, real-life (perfect) markets will fail. What of a Lange-Lerner socialist bureaucracy, where each civil-servant plant-manager is instructed to maximize his algebraic profits in terms of centrally quoted "shadow" prices regardless of losses? Will such a system find itself at the maximum-of-W configuration?

It may or may not. If AC is to fall, MC must lie below AC, but at the requisite Ω-output, MC's may nevertheless be rising, as for example at ϵ in Figure 11. If so, a Lange-Lerner bureaucracy making input and output decisions as atomistic "profit-maximizing" competitors but ignoring losses will make the "right" decisions, *i.e.*, will "place" the sys-

[49] Needless to say, comments on market effectiveness, throughout this paper, bear only on the analogue-computer aspects of price-market systems. This is a little like talking about sexless men, yet it is surely of interest to examine such systems viewed as mechanisms pure and simple.

[50] The calculus-trained reader can test this for, say, a Cobb-Douglas type function: $A = L_A{}^{\alpha} D_A{}^{\beta}$, with $(\alpha+\beta) > 1$ to give increasing returns to scale.

tem at the maximum-of-W. Each manager equating his marginal cost to the centrally quoted shadow price given out by the maximum-of-W solution, will produce precisely the output required by the Ω-configuration. By the assumption of falling AC's due to increasing returns to scale either one or both industries will show losses, but these are irrelevant to optimal allocation.[51]

What if for a maximum-of-W producers are required to produce at points such as ϵ', where $p=MC$ but MC is declining?[52] The fact that ϵ' shows $AC>MC=p$, hence losses, has been dealt with above. But more is involved. By the assumption of a falling MC-curve, the horizon-

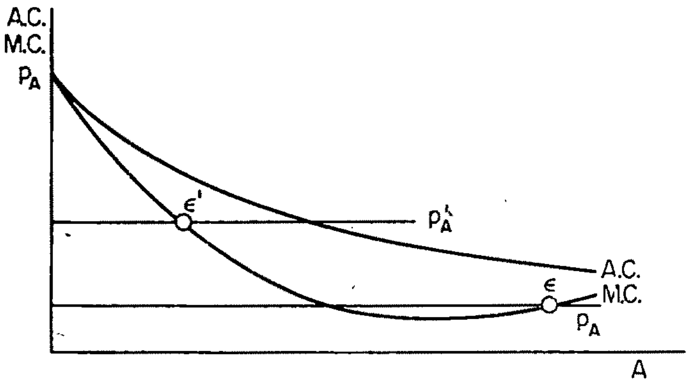

FIGURE 11

tal price line at ϵ' cuts the MC curve from below, hence profit at ϵ' is not only negative: it is at a *minimum*. A "real-life" profit maximizer would certainly not remain there: he would be losing money by the minute. But neither would a Lange-Lerner bureaucrat under instruction to maximize algebraic profits. He would try to increase his output: "extra" revenue (p_A) would exceed his MC by more and more for every additional apple produced. In this case, then, not only would real life markets break down; so would simple-minded decentralized maximizing of profits by socialist civil servants.[53]

Paradoxically enough, the correct rule for all industries whose MC is

[51] There is an ambiguity of language in the above formulation. If at the maximum-of-W configuration losses prevail, the maximum profit position "in the large" will be not at $p=MC$ but at zero output. Strictly speaking, a Lange-Lerner bureaucracy must be instructed to equate marginal cost to price or profit-maximize "in the small" without regard to the absolute value of profit. "Make any continuous sequence of small moves that increase algebraic profits, but do not jump to the origin." It is precisely the ruling-out of the zero-output position, unless called for by $MC>p$ everywhere, that distinguishes Lange-Lerner systems from "real-life" perfect markets, both viewed as "analogue computers."

[52] This would necessarily be the case, for instance, with Cobb-Douglas type increasing-returns-to-scale functions. Such functions imply ever-falling MC curves, for whatever r/w ratio.

[53] Note that a falling MC curve is simply a reflection of nonconvexity in the total cost curve.

falling at the Ω-point is: "minimize your algebraic profits." But no such rule can save the decentralized character of the Lange-Lerner scheme. In a "convex" world the simple injunction to maximize profits in response to centrally quoted prices, together with raising (lowering) of prices by the responsible "Ministries" according to whether supply falls short of (exceeds) demand, is all that is needed.[54] Nobody has to know *ex ante*, *e.g.*, the prices associated with the Ω-point. In fact the scheme was devised in part as a counter to the view that efficient allocation in a collectivized economy is impossible due simply to the sheer administrative burden of calculation. With increasing returns to scale, however, the central authority must evidently know where MC's will be falling, where rising: it must know, before issuing any instructions, all about the solution.

c. *Increasing returns to scale and the production-possibility curve.* What is left of "duality"? Real-life markets and unsophisticated Lange-Lerner systems have both failed. Yet it is entirely possible, even in situations where the Ω-constellation implies $AC > MC$ with declining MC, that the maximizing procedure of Part I remains inviolate, and that the constants embedded in the maximum problem retain their price-like significance. To see this we must examine the effect of increasing returns to scale on the production-possibility curve. There are two possible cases:

i. It is possible for both the apple and the nut production functions to exhibit increasing returns to scale, yet for the implied production-possibility curve to be concave to the origin, *i.e.*, mathematically convex (as in Figure 2). While a proportional expansion of L_A and D_A by a factor of two would more than double apple output, an increase in A at the expense of N will, in general, not take place by means of such proportional expansion of inputs. Examination of FF in Figure 1 makes this clear for the constant-returns-to-scale case. As we move from any initial point on FF toward more A and less N, the L_A/D_A and L_N/D_N proportions change.[55]

The point is that if, as in Figure 1, land is important relative to labor in producing apples, and vice versa for nuts, expansion of apple production will result in apple producers having to use more and more of the relatively nut-prone input, labor, in proportion to land. Input proportions in apple production become less "favorable." The opposite is true of the input proportions used in nuts as nut production declines. This

[54] Not quite all. Even in a statical context, the lump-sum income transfers called for by Ω require central calculation. And if adjustment paths are explicitly considered, complex questions about the stability of equilibrium arise. (*E.g.*, will excess demand always be corrected by raising price?)

[55] Only if FF should coincide with the diagonal of the box will proportions not change. Then increasing returns to scale would necessarily imply an inward-bending production-possibility curve.

phenomenon explains why with constant returns to scale in both functions the production-possibility curve shows concave-to-the-origin curvature. Only if FF in Figure 1 coincides with the diagonal: *i.e.*, if the intrinsic "usefulness" of L and D is the same in apple production as in nut production, will $F'F'$ for constant returns to scale be a straight line.

The above argument by proportions remains valid if we now introduce a little increasing returns to scale in both functions by "telescoping" each isoquant successively farther towards the origin. In fact, as long as the FF curve has shape and curvature as in Figure 1, the production-possibility curve, $F'F'$ in Figures 2 and 5, will retain its convexity.

In this "mild" case of increasing returns to scale, with a still convex production-possibility curve, the previous maximizing rules give the correct result for a maximum-of-W. Further, the constants embedded in the maximum problem retain their meaning. This is true in two senses: (1) They still reflect marginal rates of substitution and transformation. Any package of L, D, A and N worth $1 will, *at the margin*, be just convertible by production and exchange into any other package worth $1, no more, no less: a dollar is a dollar is a dollar. . . .[56] (2) The total value of maximum-welfare "national" output: p_AA+p_NN, valued at these shadow-price constants, will itself be at a maximum. A glance at Figure 5 makes this clear: at the price-ratio denoted by the line $P'_AP'_N$, Ω' is the point of highest output-value. As we shall see, this correspondence between the maximum welfare and "maximum national product" solutions is an accident of convexity.

ii. It is of course entirely possible that both production functions exhibit sufficiently increasing returns to scale to give, for specified totals of L and D, a production-possibility curve such as $F''F''$ in Figure 12.[57] This exhibits nonconvexity in output space. What now happens to the results?

If the curvature of $F''F''$ is not "too sharp," the constants given out by the maximum-of-W problem retain their "dollar is a dollar" meaning. They still reflect marginal rates of substitution in all directions. But maximum W is no longer associated with maximum shadow-value of output. A glance at Figure 12 confirms our geometric intuition that in situations of nonconvex production possibilities the bliss point coincides with a minimized value-of-output. At the prices implied, as denoted by $|\tan\psi|$, the assumed Ω-point ρ is a point of minimum p_AA+p_NN.[58]

[56] For the infinitesimal movements of the calculus.

[57] Try two functions which are not too dissimilar in "factor intensity."

[58] For $p_A/p_N=|\text{tangent }\psi|$, (p_AA+p_NN) is at its maximum at the intersection of $F''F''$ with the A-axis. Recall, incidentally, that in situations of falling MC producers were required to *minimize* profits.

But with nonconvexity in output space, matters could get much more complicated. If the production-possibility curve is *sharply* concave outward, relative to the indifference curves, it may be that the "minimize profits" rule would badly mislead, even if both industries show declining MC's. Take a one-person situation such as in Figure 13. The production-possibility curve $F'''F'''$ is more inward-bending than the indifference curves (U), and the point of tangency Δ is a point of

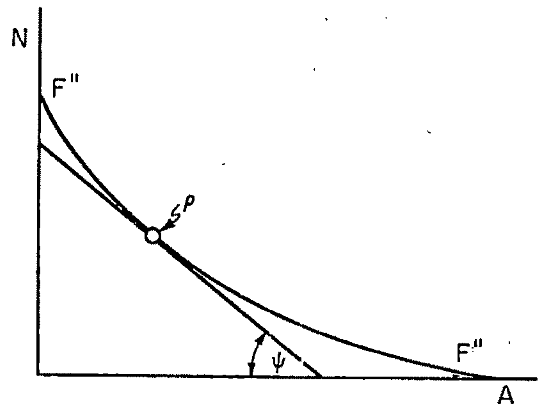

FIGURE 12

minimum satisfaction. Here, unlike above, you should rush away from Δ. The maximum welfare position is at Δ'—a "corner tangency" is involved. The point is that in nonconvex situations *relative* curvatures are crucial: tangency points may as well be minima as maxima.[59]

[59] Recall that in our discussion of Part IV corner-tangencies were important in situations where no feasible internal tangencies existed. Here there exist perfectly good and feasible internal tangencies—but they are loci of minima rather than maxima. The second-order conditions, expressed as inequalities, constitute the crucial test of optimal allocation.

It is tempting, but a mistake, to think that there is a unique correspondence between the curvature of the production-possibility curve, and the relative slopes of the nut and apple MC curves. It is true that the $[MC_A/MC_N]$ ratio associated with a point such as Ω' in Figure 5 must be smaller than $[MC_A/MC_N]$ at any point of *more A* and *less N* on $F'F'$ (*e.g.*, δ): the absolute slope of $F'F'$ has been shown to equal $pA/p_N = [MC_A/MC_N]$, and at Ω' the slope is less steep than at δ. It is also true that along a nonconvex production-possibility curve, such as that of Figure 12, an increase in A and a decrease in N are associated with a *decline* in $[MC_A/MC_N]$. But it does not follow, *e.g.*, in the first case of Figure 5, that at Ω' MC_A must be rising for an increase in A sufficiently to offset a possibly falling MC_N. (Remember, in moving from Ω' to δ we move to the right along the A-axis but to the left along the N-axis.) For any departure from Ω' will, in general, involve a change in input shadow-prices, hence *shifts* in the MC curves, while the slopes of the curves at Ω' were derived from a total cost curve calculated on the basis of the given, constant, Ω-values of w and r. The point is that cost curves are partial-equilibrium creatures, evaluated at *fixed* prices, while movement along a production-possibility curve involves a general-equilibrium adjustment that will *change* input prices. Hence it is entirely possible that at say Ω', in Figure 5, both MC_N and MC_A are falling, though $F'F'$ is convex.

So much for nonconvexity. In its mildest form, if isoquants and indifference curves retain their normal curvature and only returns to scale "increase," nonconvexity need not violate the qualitative characteristics of the maximum-of-W problem. The marginal-rate-of-substitution conditions may well retain their validity, and the solution still could give out a set of shadow prices, decentralized responses to which result in the maximal configuration of inputs, outputs and commodity distribution. But certain nonmarginal *total* conditions for effective real-life market functioning, *e.g.*, that all producers have at least to break

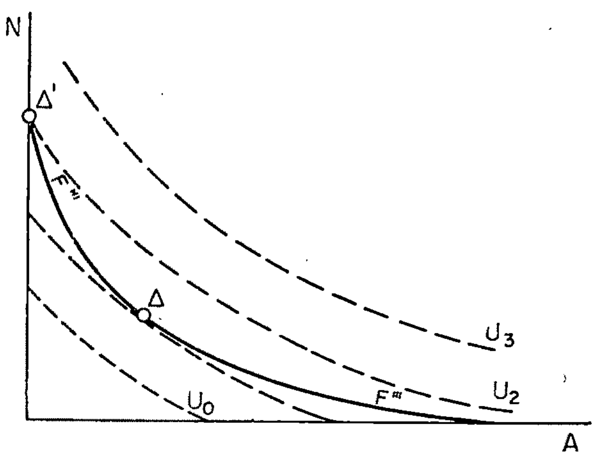

FIGURE 13

even, are necessarily violated. The shortcoming is in market institutions: the maximum-of-W solution requires such "losses." The important moral is that where increasing returns to scale obtains, an idealized price system is not an effective way to raise money to cover costs. It may, however, still be an effective device for the rationing of scarcities.[60]

VI. *Dynamics*

We have examined in some detail what conditions on the allocation and distribution of inputs and outputs can be derived from the maximization of a social welfare function which obeys certain restrictions.[61] We

[60] No mention has been made of the case that is perhaps most interesting from an institutional point of view: production functions that show increasing returns to scale initially, then decreasing returns as output expands further. No profit-seeking firm will produce in the first stage, where AC is falling, and A_Ω and N_Ω may only require one or a few firms producing in the second stage. If so, the institutional conditions for perfect competition, very many firms, will not exist. One or a few firms of "efficient" scale will exhaust the market. This phenomenon lies at the heart of the monopoly-oligopoly problem.

[61] See fn. 11.

have done so, however, using a statical mode of analysis and have ignored all the "dynamical" aspects of the problem. To charge that such statical treatment is "unrealistic" is to miss, I think, the essential meaning and uses of theorizing. It is true, however, that such treatment buries many interesting problems—problems, moreover, some of which yield illuminating insight when subjected to rigorous analysis. Full dynamical extension is not possible here, but some indication of the directions which such extension might take is perhaps warranted:

1. The perceptive reader will have noticed that very little was said about the dimensions of A, N, L_A, D_A, L_N, and D_N. The static theory of production treats outputs and inputs as instantaneous time rates, "flows"—apples per day, labor-hours per week, etc. This ignores the elementary fact that in most production processes outputs and the associated inputs, and the various inputs themselves, are not simultaneous. Coffee plants take five years to grow, ten-year-old brandy has to age ten years, inputs in automobile manufacture have to follow a certain sequence, it takes time to build a power station and a refinery (no matter how abundantly "labor and land" are applied). One dynamical refinement of the analysis, then, consists in "dating" the inputs and resultant outputs of the production functions, relative to each other. In some instances only the ordinal sequence is of interest; in others, absolute elapsed time, too, matters—plaster has to dry seven days before the first coat of paint is applied.

2. Another characteristic of production, on this planet at least, is that service flows are generated by stocks of physical things which yield their services only through time. Turret-lathe operations can be generated only by turret-lathes and these have congealed in them service flows which cannot be exhausted instantaneously but only over time. In a descriptive sense, a turret-lathe's services of today are "joint" and indivisible from some turret-lathe's services of tomorrow. Strictly speaking, this is true of most service flows. But some things, like food, or coal for heating, or gasoline, exhaust their services much faster than, *e.g.*, steamrollers, drill presses, buildings, etc. The stock dimension of the former can be ignored in many problems; this is not true of the latter set of things, which are usually labeled as fixed capital.[62] A second dynamical extension, then, consists in introducing stock-flow relationships into the production functions.

3. Lags and stock-flow relations are implied also by the goods-in-process phenomenon. Production takes place over space, and transport

[62] Much depends on arbitrary or special institutional assumptions about how much optimization we leave in the background for the "engineer." For example, machines of widely varying design could very likely yield a given kind of service. "A lathe is not a lathe is. . . ." Further, no law of nature precludes the rather speedy using-up of a lathe—by using it, *e.g.*, as scrap metal. In some situations it could even be economic to do so.

takes time, hence seed cannot be produced at the instant at which it is planted, nor cylinder heads the moment they are required on the assembly line. They have to be in existence for some finite time before they are used.

4. One of the crucial intertemporal interrelations in allocation and distribution in a world where stocks matter and where production takes time, is due to the unpleasant (or pleasant) fact that the inputs of any instant are not manna from heaven. Their supply depends on past output decisions. Next year's production possibilities will depend, in part, on the supply of machine tools; this, in turn, partly depends on the resources devoted this year to the construction of new machine tools. This is the problem of investment. From today's point of view investment concerns choice of *outputs*; but choice of what kinds and amounts of machines to build, plants to construct, etc., today, makes sense only in terms of the *input-uses* of these things tomorrow. Input endowments, L and D, become unknowns as well as data.

5. Tomorrow's input availabilities are also affected by how inputs are used today. The nature and intensity of use to which machines are subjected, the way in which soil is used, oil wells operated, the rate at which inventories are run down, etc., partly determine what will be left tomorrow. This is the problem of physical capital consumption, wear and tear, etc.—the problem of what to subtract from gross investment to get "net" capital formation, hence the net change in input supplies.

How do these five dynamical phenomena fit into the maximum-of-welfare problem? Recall that our W-function was assumed sensitive to, and only to, X's and Y's consumption. Nothing was said, however, about the timing of such consumption. Surely not only consumption of this instant matters. In a dynamic context, meaningful welfare and preference functions have to provide a ranking not only with respect to all possible current consumption mixes but also for future time. They must provide some means for weighing apples next week against nuts and apples today. Such functions will *date* each unit of A and N, and the choice to be made will be between alternative time-paths of consumption.[63]

Given such a context, the above five dynamical phenomena are amenable to a formal maximizing treatment entirely akin to that of Parts I, II and III. They are, with one qualification,[64] consistent with

[63] Note how little weight is likely to be given to current consumption relative to future consumption if we pick short unit-periods. This year certainly matters, but what of this afternoon versus all future, or this second? Yet what of the man who knows he'll die tomorrow? Note also the intrinsic philosophical dilemmas: *e.g.*, is John Jones today the "same" person he was yesterday?

[64] Capital is characterized not only by the fact of durability, but also by lumpiness or indivisibility "in scale." Such lumpiness results in nonconvexity, hence causes serious analytical troubles.

the convexity assumptions required for solubility and duality. The results, which are the fruit of some very recent and pathbreaking work by R. M. Solow and P. A. Samuelson (soon to be published), define intertemporal production efficiency in terms of time-paths along which no increase in the consumption of any good of any period is possible without a decrease in some other consumption. Such paths are characterized by the superimposition, on top of the statical, one-period or instantaneous efficiency conditions, of certain intertemporal marginal-rate-of-substitution requirements. But the statical efficiency requirements retain their validity: for full-fledged dynamical Pareto-efficiency it is necessary that at any moment in time the system be on its one-period efficiency frontier.[65]

Incidentally, the geometric techniques of Part I are fully adequate to the task of handling a Solow-Samuelson dynamical setup for a 2 by 2 by 2 world. Only now the dimensions of the production box and hence the position of the production-possibility curve will keep shifting, and the solution gives values not only for inputs, outputs and prices but also for their period-to-period changes.

There are many dynamical phenomena less prone to analysis by a formal maximizing system than the five listed above. The qualitative and quantitative supply of labor-input in the future is influenced by the current use made of the services of people.[66] There are, also, important intertemporal interdependences relating to the fact of space—space matters because it takes time and resources to span it. Moreover, we have not even mentioned the really "difficult" phenomena of "grand dynamics." Production functions, preference functions, and even my or your welfare function shift over time. Such shifts are compounded by what in a sense is the central problem of nonstationary dynamics: the intrinsic uncertainty that attaches to the notion of future.[67] Last, the very boundaries of economics, as of any discipline, are intrinsically arbitrary. Allocation and distribution interact in countless ways with the politics and sociology of a society . . . "everything depends on everything." But we are way beyond simple analytics.

A Historical Note on the Literature

Note: For a short but substantive history of the development of thought in this field, the reader is referred to Samuelson's synthesis (nonmathematical), pp. 203–19 of *Foundations* [1].

[65] For possible exception to this, due to sensitivity of the volume of saving, hence of investment, to "as imputed" income distribution, *cf.* my "On Capital Productivity, Input Allocation and Growth," *Quart. Jour. Econ.*, Feb. 1957, LXXI, 86–106.

[66] Although labor is in many respects analytically akin to other kinds of physical capital—resources can and need be invested to expand the stock of engineers, as to expand that of cows and machines. Machines, however, are not subject to certain costless "learning" effects.

[67] While formal welfare theory becomes very silent when uncertainty intrudes, much of economic analysis—*e.g.*, monetary theory, trade fluctuations—would have little meaning except for the fact of uncertainty.

See also Bergson, "Socialist Economics," *Survey of Contemporary Economics*, Vol. I [2] and Boulding, "Welfare Economics," *Survey*, Vol. II [3].

The foundations of modern welfare theory are well embedded in the soil of classical economics, and the structure, too, bears the imprint of the line of thought represented by Smith, Ricardo, Mill, and Marshall. But in classical writing prescription and analysis are inseparably intertwined, the underlying philosophy is unabashedly utilitarian, and the central normative concern is with the efficacy of market institutions. In contrast, the development of modern welfare economics can best be understood as an attempt to sort out ethics from science, and allocative efficiency from particular modes of social organization.

The classical tradition reached its culmination in Professor Pigou's *Wealth and Welfare* [4]. Pigou, the last of the great premoderns was also, as witness the *Economics of Welfare* [5], among the first of the moderns. But he was not the first. Vilfredo Pareto, writing during the first years of the century, has a pre-eminent claim [6]. It is his work, and Enrico Barone's after him [7]—with their focus on the analytical implications of maximization—that constitute the foundations of the modern structure. Many writers contributed to the construction, but A. P. Lerner, Abram Bergson, and Paul Samuelson come especially to mind [8]. Bergson, in particular, in a single article in 1938, was the first to make us see the structure whole. More recently, Kenneth Arrow has explored the logical underpinnings of the notion of a social welfare function in relation to social choice [9]; T. C. Koopmans, Gerard Debreu and others have tested more complicated systems for duality [10]; Samuelson has developed a meaningful species of social indifference function [11] and derived efficiency conditions for "public goods" [12]; and Robert Solow and Samuelson, in work soon to be published, have provided a dynamical extension [13, 14].

There is, also, an important modern literature devoted to the possible uses of the structure of analysis for policy prescription. Three separate sets of writings are more or less distinguishable. There was first, in the 'twenties and 'thirties, a prolonged controversy on markets versus government. L. von Mises [15] and later F. A. Hayek [16] were the principal proponents of unadulterated *laissez faire*, while H. D. Dickinson, Oscar Lange, Lerner and Maurice Dobb stand out on the other side [17]. The decentralized socialist pricing idea, originally suggested by Barone and later by F. M. Taylor, was elaborated by Lange to counter the Mises view that efficient allocation is impossible in a collectivized economy due simply to the sheer scale of the administrative burden of calculation and control.

Second, in the late 1930's, Nicholas Kaldor [18] and J. R. Hicks [19] took up Lionel Robbins' [20] challenge to economists not to mix ethics and science and suggested a series of tests for choosing some input-output configurations over others independently of value.[68] Tibor Scitovsky pointed out an important asymmetry in the Kaldor-Hicks test [21] and Samuelson in the end demonstrated that a "welfare-function" denoting an ethic was

[68] The Hicks-Kaldor line of thought has some ties to an earlier literature by Marshall, Pigou, Fisher, etc., on "what is income."

needed after all [22]. I. M. D. Little tried, but I think failed, to shake this conclusion [23].[69] The Pareto conditions are necessary, but never sufficient.

Third, there is a body of writing, some of it in a partial-equilibrium mode, which is concerned with policy at a lower level of abstraction. Writings by Harold Hotelling, Ragnar Frisch, J. E. Meade, W. A. Lewis, are devoted to the question of optimal pricing, marginal-cost or otherwise, in public utility (M.C.<A.C.) situations [24]. Hotelling, H. P. Wald, M. F. W. Joseph, E. R. Rolph and G. F. Break, Little, and more recently Lionel McKenzie, have, in turn, analyzed alternative fiscal devices for covering public deficits [25]. Last, a number of the above, notably Lerner, Kaldor, Samuelson, Scitovsky, Little, McKenzie and, most exhaustively, Meade, as well as R. F. Kahn, Lloyd Metzler, J. de V. Graaf, H. G. Johnson and others have applied the apparatus to questions of gains from international trade, optimal tariffs, etc. [26].

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[9] See K. J. Arrow, *Social Choice and Individual Values* (New York, 1951).

[10] P. A. Samuelson, *Market Mechanisms and Maximization* (unpublished, RAND Corporation Research Memo., 1949).

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[13] R. Dorfman, R. M. Solow and P. A. Samuelson, *Linear Programming and Economic Analysis* (RAND Corporation, forthcoming), esp. Ch. 11, 12. Ch. 14 contains a most elegant exposition by R. M. Solow of modern welfare theory in linear programming terms.

[14] Four other works should be mentioned: M. W. Reder, *Studies in the Theory of Welfare*

[69] While I find Little's alternative to a welfare function ("an economic change is desirable if it does not cause a bad redistribution of income, and if the potential losers could not profitably bribe the potential gainers to oppose it" [p. 105]) no alternative at all, his is a provocative evaluation of modern welfare theory. For an evaluation, in turn, of Little, see K. J. Arrow, "Little's Critique of Welfare Economics," *Am. Econ. Rev.*, Dec. 1951, XLI, 923–34.

Economics (New York, 1947), is a book-length exposition of modern welfare theory; Hla Mynt's *Theories of Welfare Economics* (London, 1948), treats classical and neoclassical writings; W. J. Baumol in *Welfare Economics and the Theory of the State* (London, 1952), attempts an extension to political theory; in a different vein, Gunnar Myrdal's *Political Elements in the Development of Economic Theory*, transl. by Paul Streeten (London, 1953), with Streeten's appendix on modern developments, is a broad-based critique of the premises of welfare economics.

[15] For the translation of the original 1920 article by Mises which triggered the controversy, see F. A. Hayek, ed., *Collectivist Economic Planning* (London, 1935).

[16] See esp. F. A. Hayek, "Socialist Calculation: The Competitive Solution," *Economica*, May 1940, VII, 125–49; for a broad-front attack on deviations from *laissez faire* see Hayek's polemic, *The Road to Serfdom* (Chicago, 1944).

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[25] See esp. Little, "Direct versus Indirect Taxes," *Econ. Jour.*, Sept. 1951, LXI, 577–84.

[26] For a comprehensive treatment of the issues, as well as for references, see J. E. Meade, *The Theory of International Economic Policy*, Vol. II: *Trade and Welfare* and *Mathematical Supplement* (New York, 1955).

ANTITRUST AND THE CLASSIC MODEL

By SHOREY PETERSON*

"Outsiders," wrote John Neville Keynes in introducing his *Scope and Method*, "are naturally suspicious of a science, in the treatment of which a new departure is so often and so loudly proclaimed."[1] It is a curious and disturbing fact that at the traditional center of economics—the role of markets in solving the general problem of order in economic life—new departures have been proclaimed so often.

Outsiders become aware of economics mainly when economists appraise the working of the economy or propose guides for its control; and it is here that the theory of values and markets, more than in its abstract expression, has chief impact. In the quarter-century since Chamberlin put monopoly and competition together in a single formulation, economists have stressed the prevalence of monopoly elements in markets, but have differed in interpreting this condition, especially in its bearing on policy. Commonly they relate it to pre-Chamberlin thought regarding the nature and place of competition, and bring a putative "classic" model, at least implicitly, into their discussion. In doing so they will agree that such a model describes badly how markets really work, but will often disagree as to its normative role. They may accept its guidance in defining the necessary working of markets in a free system, and then despair of the future of control through markets that do not and cannot work in that manner. Or, more likely now, they may reject the model as a false guide because our present economy seems to do very well without meeting its requirements. As substitutes for it they may rely on theories of "workable competition" and "countervailing power."

The present contention is that both of these views misrepresent earlier analysis when they deduce policy implications from models used in static theory. How wrong the deduction can be is apparent when we examine the work of such economists as John Bates Clark and Alfred Marshall who brought their theory into the practical realm. Their handling of market problems, running the gamut from static theory to policy proposals, warrants neither the pessimism nor the rejection. Indeed it would be more accurate to say that their thinking set a course

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[1] *The Scope and Method of Political Economy* (London, 1891), p. 8.

which we are still largely following, and perhaps without being much farther down the road. The senior Keynes should find merit in a fuller sense of the continuity in this development.

I. *Current Interpretations of the Earlier View of Markets*

Galbraith, for example, proceeds in his *American Capitalism* from the position that a "vast distance separates oligopoly from the competition of the competitive model." "It is a measure of the magnitude of the disaster of the old system," he says, "that when oligopoly or crypto-monopoly is assumed it no longer follows that any of the old goals of social efficiency are realized." And again: "By evolution, from a system where nearly everything worked out for the best, economists found themselves with a system where nearly everything seemed to work out for the worst."[2]

As thus stated, this view of earlier thinking may lead to a denial merely of its descriptive validity, or also of its normative worth. In *The Decline of Competition* Arthur R. Burns displayed the first of these leanings. He began by adopting the usage common since Chamberlin of employing the term competition to mean pure competition and of referring to situations departing therefrom, that is, to most markets, as noncompetitive or monopolistic. Under a variety of circumstances business firms act in light of "the effects of changes in their output, or their price policy, upon the market as a whole," and thus "find themselves in the position of a monopolist" in price and output decisions. In a context not of abstract theory but of market appraisal and policy recommendation, Burns finds it significant that "price and production policies would be expected to differ from those associated with perfect competition." In his long and impressive recital of the monopoly elements in markets, it seems to be enough to show that these elements are present—unnecessary to determine how seriously they cause price and output adjustments to depart from an acceptable norm that embraces all elements of public interest. More recently Burns has affirmed his view that, under the antitrust laws, "we have failed to achieve a competitive system at all closely resembling that which was in the minds of the economists of the last century . . . ," and presumably has indicated his conception of the earlier view when he says: "Only pure price competition can produce the results which most people have in mind when they defend what they call in general terms 'the competitive system.' "[3]

[2] J. K. Galbraith, *American Capitalism—The Concept of Countervailing Power* (Cambridge, Mass., 1952), pp. 45, 46, 51. See also Ch. 2.

[3] A. R. Burns, *The Decline of Competition* (New York, 1936), pp. 3–6, 40–41. The second reference is to his contribution to the "The Effectiveness of the Federal Antitrust Laws: a Symposium," D. M. Keezer, ed., *Am. Econ. Rev.*, June 1949, XXXIX, 691–94.

But to Galbraith the lack of fit of the competitive model has quite a different meaning. While, according to it, things should work out for the worst under present conditions, they have not done so. The American economy appears wonderfully effective. The model must thus be rejected as guide as well as description; there can be no need of promoting the competition it envisages. In Galbraith's theory the offsetting power of groups on opposite sides of the market fills the breach, and market power is thereby kept from upsetting the allocative and distributive mechanism.

The equally optimistic and more widely accepted view of present markets is that competition, to succeed as regulator, need not approach the perfection of the model—indeed, it should not do so. This is the view that is now variously formulated under the caption of "workable competition." The essence of it is that even such rivalry as prevails when competitors are few can serve quite well in assigning resources and dividing income, and is greatly superior to its improbable purer cousin in promoting productivity and progress. In developing this view Schumpeter doubted the complete success of pure competition even as a static maximizing agent, but stressed mainly that an ideal disposition of resources at a given point in time is of small consequence when compared with the development of production through time. The competition that counts is "the competition from the new commodity, the new technology, the new source of supply, the new type of organization . . . "; and for it to operate, substantial elements of market power are necessary, not only as the concomitant of requisite firm size but as steadying influences in what would otherwise be too turbulent an economic sea. The present point is that Schumpeter regarded this theory of market operation as almost completely at odds with traditional thought. Despite some recognition of monopoly, "neither Marshall and Wicksell nor the classics," he said, "saw that perfect competition is the exception and that even if it were the rule there would be much less reason for congratulation than one might think."[4]

With similar optimism respecting big-firm capitalism A. A. Berle, in his recent *The 20th Century Capitalist Revolution,* joins in the rejection of older thinking, but with his own characteristic interpretation. Under the corporate system it is not true, he says, that "competition of great units (which does exist) produces the same results as those which used to flow from competition among thousands of small producers. . . . And it is indefensibly disingenuous to assert that these operations are primarily following economic laws more or less accurately outlined by the classic economists a century ago when the fact appears to be that

[4] J. A. Schumpeter, *Capitalism, Socialism, and Democracy,* 2d ed. (New York and London, 1947), pp. 74–78 and Ch. 7, 8.

they are following a slowly emerging pattern of sociological and political laws, relevant to the rather different community demands of our time." For urging the effectiveness of competition among the giants, Sumner Slichter is put in the category of the disingenuous, "since competition within the system of corporate concentrates produces results quite different from the balanced economy expounded by Adam Smith."[5] Whatever the looseness of his history, whether of markets or of economic thought, Berle joins with Schumpeter and Galbraith in finding that present results are generally good.

Galbraith and Berle wrote for a wide audience and Schumpeter has been widely read; and their rejection for present use of a supposed classic model is now echoed in abler segments of the public press. Thus *Business Week*, under the heading "Clobbering Theory," reports the 1953 American Economic Association meetings in which Galbraith's thesis was discussed: "Classic economics teaches that only a competitive economy can be sound and prosperous. . . . But the fact is that the United States economy bears only a remote likeness to the classic picture of a competitive system—and yet it has prospered enormously. . . . "[6] And *Fortune*, in an article on "The New Competition," points out that "the word competition no longer means what it once did." It is a competition that prevails even among oligopolists and it has been a "stunning success." This competition is said to be essentially different from what competition meant "to most of the economists and experts who have until recently shaped the accepted notions of competition. . . . Competition to them is a way of life that can be defined fairly rigidly. They conceive competition in terms of the grand old original or classic model of Adam Smith and his followers."[7]

To economists trained in the 1920's and before, as this writer was—and especially to economists who have long followed the theory underlying antitrust policy—the foregoing oft-repeated view of what has happened to economics must seem mildly shocking. Contrary to this view, it would be truer to say that the trend represented by the phrase "workable competition" is a natural outgrowth of the thinking fifty years ago of such economists as J. B. Clark and Alfred Marshall. The policy conclusions objected to by workable-competition advocates really rest on the broadened definition of monopoly in much more recent theory. Some would recast earlier theory in line with this definition, but Marshall and Clark, and other theorists of realistic outlook from Adam Smith on, quite surely would have rejected the policy implica-

[5] A. A. Berle, Jr., *The 20th Century Capitalist Revolution* (New York, 1954), pp. 11–12, 43–52.

[6] January 9, 1954, pp. 93–99.

[7] June 1952, p. 99.

tions of any such reconstruction of their thought. Their conception of welfare was never confined to the norm of precise efficiency in allocation and their pratical judgments moved well beyond the narrow boundaries of static analysis.

II. *Older Thinking as to Economic Goals, Especially in a Dynamic Setting*

When economists give their main attention to a theoretical problem they are not in effect declaring that the solution of that problem meets all the requirements, or even the principal requirements, of well-being. Economists of the nineteenth century, especially the classical, Austrian, and neoclassical economists, gave their greatest effort to the problem of value. Smith, Ricardo, and the classical writers were unable to relate utility and cost meaningfully, or the values of factors and products fundamentally, and it required generations of economists to define the value conditions of economic behavior. The problem was fascinating in itself, and it seemed vital because prices were an obvious basis of action and of income in a specialized and exchanging society. A full grasp of the system-wide problem of economy in using resources, and the inherent relation of distribution to it, seems to have come only gradually, and with it a full realization of the role of a system of values in solving the general problem of order; but as thinking acquired this focus, the necessity of dealing with so complex a problem under simplified assumptions became evident. Very naturally the analysis was carried forward, especially by mathematically inclined economists, to an attempted final formulation of the condition of ideal maximization in the whole economy. The problem was worthy of the effort given it; but the inference is unwarranted that economics thereby limited its concern to a nice allocation of resources, or viewed the assumptions of allocation theory as descriptive of the real world.

The supposed need today of a new theory of economic performance, at sharp variance from the traditional, may indeed reflect some shift in emphasis among the several economic goals. There is great stress now on progress in total output, and earlier theory may have dealt inadequately with it. Schumpeter doubtless judged rightly in asserting the superiority of this objective over the niceties of assigning and rewarding factors; but he was wrong, nevertheless, in imputing neglect of it to the leading economists of earlier periods, or the advocacy by them of conditions which would impede its accomplishment. These economists seemed to think that coordination of activities through markets was the most fruitful problem for economists to attack; but most of them took it for granted that welfare depends primarily on high output and on the conditions necessary to it. Adam Smith struck the keynote in

beginning his *Inquiry into the Nature and Causes of the Wealth of Nations* with a treatment "Of the Causes of Improvement in the Productive Power of Labour . . . " and in his obviously greater concern over "Progress of Opulence" than over any model that might now be described as "grand old original or classic." J. S. Mill concluded the introduction to his *Principles* with the statement: "The laws of Production and Distribution, and some of the practical consequences deducible from them, are the subject of the following treatise." His long first Book deals with production; and when, following Books II and III on distribution and value, he passes in Book IV from the "statics of the subject" to its "dynamics," he views the progress of society largely in terms of expanding production.[8]

No one should attempt to state briefly the criteria by which Marshall was guided in the incidental appraisals that appear in his broad picture of economic organization. Advance in output is implicit as a leading element in many of his remarks on progress; but his main concern was with nothing less than the whole improvement of man. Certainly it would misrepresent him grossly to say that he thought the success of a system depended on achieving certain marginal relationships in using resources. "The main concern of economics," he said, "is thus with human beings who are impelled, for good and evil, to change and progress. Fragmentary statical hypotheses are used as temporary auxiliaries to dynamical—or rather biological—conceptions: but the central idea of economics, even when its Foundations alone are under discussion, must be that of living force and movement."[9]

In the present context John Bates Clark is the most instructive spokesman for traditional economics, since he was both an eminent expositor of neoclassical doctrine and a leading student of monopoly and antitrust policy, writing in the midst of early excitement over the threat of concentrated market power to the economic structure. In formulating in his *Distribution of Wealth* his static, perfect-market theory of factor pricing and resource use, he characterized his effort with the concluding statement that "all real knowledge of the laws of movement depends upon an adequate knowledge of the laws of rest." He saw this approach as only a part of economics since "a static state . . . is imaginary. All natural societies are dynamic; and those which we have principally to study are highly so." "A theory of disturbance and variation," he said then, would be "included in the science of eco-

[8] J. S. Mill, *Principles of Political Economy* (New York, 1883, from 5th London edition), Vol. I, p. 42; Vol. II, pp. 271–72. As to his personal choice among the tests of a good system, Mill said he could not "regard the stationary state of capital and wealth with the same unaffected aversion so generally manifested toward it by political economists of the old school" (Vol. II, p. 336).

[9] Alfred Marshall, *Principles of Economics*, 8th ed. (London, 1920), p. xv.

nomic dynamics; but the most important thing that is included in it is a theory of progress."[10] Clark essayed this larger task in his *Essentials of Economic Theory*, though only as a "provisional statement of the more general laws of progress"; and in it he set forth his views of monopoly and of related policy, as will be noted below.[11] For the moment we need only observe Clark's perspective of goals, as when he stated in his *The Control of Trusts* that " . . . progress is in itself the *summum bonum* in economics, and that society is essentially the best which improves the fastest."[12]

But it is only part of the story to see that leading economists of the past gave no special pre-eminence to the value matters they studied so thoroughly, and looked on their static hypotheses as something less than realistic description. While they stressed high and growing production, did this result not depend in their theory on a degree of competition impossible under modern conditions? Galbraith, notably, rests his criticism on this interpretation. Among "the old goals of social efficiency" he includes "getting the most for the least—the common engineering view of efficiency," together with "appropriate incentive to change—the adoption of new and more efficient methods of production"; and he lumps these production goals with those of optimum allocation and distribution in declaring that when competitors are few "it no longer follows that any of the old goals of social efficiency are realized." Indeed, for all of these goals to be reached, as Galbraith interprets the requirements of earlier theory, competition should be construed even more rigorously than was done; and he applauds the more recent economists who "began to require of competition a meaning which would cause it, in turn, to produce the economic and social consequences which earlier economists had associated with it."[13]

The opposite view seems more plausible. Only when traditional economics is thus "perfected" is it vulnerable to the charge that, by its rationale, everything should work out for the worst in modern capitalism. We should not inflict on it so damaging a refinement. It is true that competition has always been assigned a central place among the conditions of productivity and progress; it has been counted on to spur improvement, rid industries of weak producers, prevent gain through

[10] *The Distribution of Wealth* (New York, 1899), pp. 442, 31, 33.

[11] *Essentials of Economic Theory—as Applied to Modern Problems of Industry and Public Policy* (New York, 1907), p. v.

[12] *The Control of Trusts* (New York, 1901), pp. 82–83.

[13] Galbraith, *op. cit.*, pp. 16–20. Very properly Galbraith includes among the main economic goals—along with high productivity, effective allocation, and acceptable distribution—the stable high-level employment of resources. In dealing with this goal traditional economics comes off less well; but here the matter at issue is only incidentally, if at all, the competition that was assumed.

restricting performance. But the competition that serves these ends need not be perfect—in major respects it should not be—and earlier economists knew this, much as we do. Whatever the perfection formerly thought necessary for markets to perform certain allocative and distributive functions—the topic of the following section—no such condition should be read into their analysis of the more dynamic, onmoving aspects of economic performance.

Again, J. B. Clark's thinking is pertinent—a natural source for students who would link their thinking with the past. Clark did indeed insist that monopoly is decidedly "unfavorable to continued improvement in the productive arts" whereas "competition is the assured guarantee of all such progress." But Clark wrote prior to that unfortunate usage by which all that is not pure competition is labeled monopoly. By monopoly he meant unified control of a market, and by competition, in this context, "healthful rivalry in serving the public." He feared the trusts that were developing and saw that "partial monopolies" were prevalent and dangerous.[14] But he saw the advantages of large establishments and also of consolidations, including even their contributions to research and innovation, which Galbraith says was slow to be recognized. The following may summarize Clark's view:

> A vast corporation that is not a true monopoly may be eminently progressive. If it still has to fear rivals, actual or potential, it is under the same kind of pressure that acts upon the independent producer—pressure to economize labor. It may be able to make even greater progress than a smaller corporation could make, for it may be able to hire ingenious men to devise new appliances, and it may be able to test them without greatly trenching on its income by such experiments. When it gets a successful machine, it may introduce it at once into many mills. Consolidation without monopoly is favorable to progress.[15]

Thus, in the manner of Schumpeter and others, Clark was saying not merely that productivity and progress can persist in the face of an admixture of monopoly, but that within limits they are promoted positively by it. This view appeared most clearly in his appreciation of patent policy: "If an invention became public property the moment that it was made, there would be small profit accruing to any one from the use of it and smaller ones from making it. . . . This fact affords a justification for one variety of monopoly. . . . Patents are a legal device for promoting improvements, and they accomplish this by invoking the principle of monopoly which in itself is hostile to improvement." He recognized the possibility of abuses, but he sensed the principle, which

[14] *Essentials*, pp. 364, 374, 382, 533–34.
[15] *Ibid.*, p. 534.

he stated elsewhere more abstractly, that perfect competition instead of being a condition of progress would actually prevent it.[16]

There is another quite different respect in which the fullest competition is often deemed harmful and unworkable. It lies in the fact that in modern industry with its indivisibilities, fixed costs, and lumpy expansion in anticipation of demand, wholly unrestricted competition is likely to make profit-seeking too difficult, losses too prevalent, for firms to remain healthy and vigorous. This view was also common a half-century and more ago and was urged as a reason for accepting, though with misgiving, the limitations that size and combination bring. In his early work, *The Philosophy of Wealth*, Clark applauded the "conservative competition in which economists of a few years ago were able to see realized a general harmony of social interests"; and with it he contrasted "the fiercer contest in which eventual success comes to a participant through the extermination of rivals, the process well-named 'cut-throat' competition." "Easy and tolerant competition," Clark said, "is the antithesis of monopoly; the cut-throat process is the father of it."[17]

Later he provided an explanation, as we would now, in terms of fixed costs and unused capacity and the possibility that competition will drive prices down close to the level of variable costs. Such competition he pointed out, in discussing water transportation in the *Essentials*, results usually in "a merely tacit agreement to 'live and let live'"; and he thought "a normal kind of competition will stop short of the warfare which drives both rivals into bankruptcy."[18] Still later, in the second edition of *The Control of Trusts*, the situation in industry in general was explained, and the case presented and conditions set forth for "a tolerant and normal competition" under which big industry can remain vigorous.[19] This fear of wholly unrestricted competition was quite general among American economists of the period.[20] That Marshall questioned the wisdom of unlimited competition was evident both in his *Principles* and in his *Industry and Trade*, as will appear incidentally in the following section.

[16] *Ibid.*, pp. 360, 366, 373. Clark's "five organic changes," the basis of his "economic dynamics," included growth of population and of capital and changes in methods and organization of production and in consumers' wants. Shifting of production to new products did not receive separate recognition but appeared under the last heading. *Ibid.*, 203–06.

[17] *The Philosophy of Wealth* (Boston, 1886), p. 120.

[18] *Essentials*, pp. 414–15.

[19] J. B. Clark and J. M. Clark, *The Control of Trusts*, rev. ed. (New York, 1912), pp. 168–83.

[20] See, for example, A. T. Hadley, *Economics* (New York and London, 1896), Ch. 6; J. W. Jenks, *The Trust Problem*, rev. ed. (New York, 1905), pp. 140, 16–20; F. W. Taussig, *Principles of Economics*, 2d ed. (New York, 1911), Vol. II, pp. 434–36.

III. *Workability of Imperfect Competition, as Seen by Earlier Economists*

Now let us turn, in this comparison of past with present thinking, from the conditions of expanding productivity and general industrial health to the distortions commonly attributed to monopoly. To say that a system with some mixture of monopoly in its competition may do a good job in developing productive power is not to say that it escapes serious misallocation and exploitation. Much that is now claimed on behalf of a new concept of competition, supposedly different from that of the older economists, amounts to saying that our economy does so well in expanding output that we can afford to overlook the distortions. This, in part, is what Schumpeter said. But theories of "workable competition," as of "countervailing power," go further and give reasons why departures from purity in competition do little harm to price relationships. Are these reasons much different from the views of economists of fifty or more years ago? Again, the present theme is that they are not—that they differ only as more fully developed concepts differ from their origins.

To begin with, we need perspective of the place that pure competition, or whatever the "classic model" implies, had in relevant earlier thinking. A plausible conclusion, when we scan the long attack on value problems, is that particular features and degrees of competition had a much smaller place in the whole analysis, even implicitly, than is now often supposed. The main struggle of economists over a century or more was not in spelling out marginal refinements but in putting the main building blocks in some sort of order: in relating utility and cost; in recognizing other costs than labor; in seeing the broad dependence of factor prices on product prices, as well as the narrower reverse relationship; in assigning separate values to factors used in combination—all, of course, with incremental logic but with the main structure transcending the static niceties. In a society faced with vast possibilities of gross error in adapting complex resources to satisfying countless wants, formulation in value terms of the main elements of system-wide order was the goal to be sought and is the achievement now to be applauded.

In this setting the problems of allocation and distribution do not depend for their solution on a certain kind of competition; the essential solution is largely independent of the type of market. It is often said that competition is *the* regulator of a market economy; but, on the contrary, the chaos that would prevail in the absence of effective control is obviated not by competition alone but by the more general operation of the whole price mechanism. This is evident when we observe that even a monopolist can derive revenue only by producing what people will

buy, and that he is best off when he aims at the most valuable flow of products from the resources he uses. Nor can he get the most profit without employing effective techniques of production, and in other respects selecting and combining factors to best advantage. His demand enters into the total demand for each factor, and this demand, with the supply, sets the price of the factor and the cost of its use, and thus provides the essential barrier to inferior applications of it. True, his market power creates stresses that prevent full maximization from the social standpoint and his income may be greater than his performance requires. But the main elements of order are still present. A degree of competition that will keep these distortions within acceptable bounds has always been thought of as an essential part of the mechanism, but it is only a subordinate part of the whole scheme of control that the older economics explained for us.

This is elementary and is said only because lack of perspective regarding it has been common and has appeared in widely influential writing. The confusion may be explicit, as in assuming that a market economy is practically unregulated unless competition approaches perfection—or that the older economics held this to be the case. Or it may be implicit, as, for example, in Berle's contention that corporate operations are no longer guided by the market forces of traditional theory but by the mores of essentially political entities. Berle is offering a plausible theory of behavior within a limited range of decision-making; but, so far as traditional economics is concerned, he overlooks the main point, namely that the greatest corporation is still subject to the tyranny of the income statement and can prosper only as it directs production in keeping with buyer preferences and uses resources with an eye to costs determined in a setting of alternative uses.

Thus viewed, this value structure defines the broad conditions of order in a market economy even when competitors are few. But its formulators may still be charged with setting up misleading guideposts if, implicitly, they made the ultimate niceties the crux of the allocation process. This, however, does not seem to have been the case, at least among leading economists who related theory to practical issues.

In this connection also, J. B. Clark is the best example of an able theorist concerned specifically with monopoly and antitrust. Clark seems generally to have recognized the difficulties that economists of the period are now said to have ignored, and his resolution of them suggests much present thinking. In his *Essentials* he says:

> The most striking phenomenon of our time is the consolidation of independent establishments by the forming of what are usually called trusts; and this and all the approaches to it are precluded by the static hypothesis. There is a question whether, after competition has reduced

> establishments in one subgroup to a half dozen or less, they would not, even without forming a trust, act as a quasi-monopoly.[21]

He saw the danger: "What we have is neither the complete monopoly nor the merely formal one, but one that has power enough to work injury and to be a menace to industry and politics." But markets still provide protection: even when the entire product comes from a single company,

> . . . the price may conceivably be a normal one. It may stand not much above the cost of production to the monopoly itself. If it does so, it is because a higher price would invite competition. The great company prefers to sell all the goods that are required at a moderate price rather than to invite rivals into its territory. This is monopoly in form but not in fact, for it is shorn of its injurious power; and the thing that holds it firmly in check is *potential competition*. . . . Since the first trusts were formed the efficiency of potential competition has been so constantly displayed that there is no danger that this regulator of prices will ever be disregarded.[22]

But, said Clark, this "check works imperfectly. At some points it restrains the corporations quite closely and gives an approach to the ideal results, in which the consolidation is very productive but not at all oppressive; while elsewhere the check has very little power, oppression prevails, and if anything holds the exactions of the corporation within bounds, it is a respect for the ultimate power of the government and an inkling of what the people may do if they are provoked to drastic action." He was hopeful that a policy aimed at "keeping the field open for competitors" might obviate more drastic action. This would require prevention of unfair and predatory methods. "The preservation of a normal system of industry and a normal division of its products requires the suppression of all those practices of great corporations on which their monopolistic power depends."[23]

While Clark saw the possibility of quasimonopoly when competitors are few, he believed "that competition usually would, in fact, survive and be extremely effective among as few as five or six competitors, till they formed some sort of union with each other."[24] No well-formed theory of oligopoly governed his thinking, and thus he saved himself the ordeal, first, of assuming full joint profit maximization when there are few competitors, and then of finding later a complex of reasons for doubting whether in fact this outcome is likely under dynamic condi-

[21] *Essentials*, p. 201.
[22] *Ibid.*, pp. 380–82; italics in original.
[23] *Ibid.*, pp. 383, 395.
[24] *Ibid.*, pp. 201–02.

tions. With only moderate skepticism he might have accepted Schumpeter's view that the monopoly elements may be just sufficient to offset the forces of "creative destruction" which threaten the disappearance of profit. Clark observed:

> The actual shape of society at any one time is not the static model of that time; but it tends to conform to it, and in a very dynamic society is more nearly like it than it would be in one in which the forces of change are less active. With all the transforming influences to which American industrial society is subject, it today conforms more closely to a normal form than do the more conservative societies of Asia.[25]

Marshall, like Clark, fits poorly the supposed pattern of older thinking that we are questioning—a pattern of implied optimism respecting capitalism mistakenly resting on its assumed close resemblance to some model of near-perfect competition. Marshall was at least in part aware of the theoretical import of that ideal competitive state in which producers sell "in a large open market in such small quantities, that current prices will not be appreciably affected by anything which they may do or abstain from doing . . . ";[26] but he disliked pushing his hypotheses so far. For better or worse, a "principle of continuity," as he had called it, animated his thinking, and he saw "great mischief" in "drawing broad artificial lines of division where Nature has made none."[27] Thus, even in his *Principles*, in explaining "normal" pricing in manufacturing and merchandising, he did not adopt as his starting point the fluid, market-determined pricing of agriculture, but instead assumed the condition of quoted prices which prevails in such markets, with each seller dependent not on an impersonal body of purchasers but on specific patronage. For instance, in considering the common situation of firms that immediately must operate below capacity, he says:

> In a trade which uses very expensive plant, the prime cost of goods is but a small part of their total cost; and an order at much less than their normal price may leave a large surplus above their prime cost. But if producers accept such orders in their anxiety to prevent their plant from being idle, they glut the market and tend to prevent prices from reviving. In fact however they seldom pursue this policy constantly and without moderation. If they did, they might ruin many of those in the trade, themselves perhaps among the number; and in that case a revival of demand would raise violently the prices of the goods produced by the trade. Extreme variations of this kind are in the long run beneficial neither to producers nor to consumers; and general opinion is not altogether hostile to that code of trade morality

[25] *Ibid.*, p. 197.

[26] Alfred Marshall, *Industry and Trade* (London, 1927), p. 401. Much of this volume was written long before its appearance in 1919, part of the type having been set in 1904.

[27] *Principles*, preface to the 1st edition as appearing in the 8th, p. ix.

which condemns the action of anyone who "spoils the market" by being too ready to accept a price that does little more than cover the prime cost of his goods, and allows but little on account of his general expenses.[28]

Thus, in his theory of short-run use of plant capacity, Marshall implicitly rejects pure competition as his expository framework, and he rejects also the allocative result of pure competition as a sufficient criterion in judging control through markets.

Marshall's *Principles* was devoted to what he called "foundations," the exposition of the "normal" in equilibrium terms; and the more "biological" approach required by the development of modern industry he put aside for separate analysis in his *Industry and Trade*.[29] In this analysis the prevailing theme is that even "open" markets display only a qualified competition, and monopoly and competition "shade into each other by imperceptible degrees." "Every manufacturer, or other business man, has a plant, an organization, and a business connection, which put him in a position of advantage for his special work"; and thus "for the time being he and other owners of factories of his class are in possession of a partial monopoly. . . . Combinations for regulating prices aim at consolidating provisionally this partial monopoly, and at putting it in good working order. . . . "[30] In this setting he examines at length the growth of plant size for technical reasons and the many-rooted development of corporate combination and cartelization in Germany, Britain, and America.

Competition has a central place in neoclassical theory; but Marshall, its great exponent, remained unexcited by his impressive evidence that competition is manifest mainly in rough approximate ways. Monopoly power is a continual threat, but "absolute monopolies," he believed, "are of little importance in modern business as compared with those which are 'conditional' or 'provisional' " and the latter keep their place only if "they do not put prices much above the levels necessary to cover their outlays with normal profits." Like Clark, Marshall thought a "severely monpolistic price policy" unlikely because "a man of sound judgment . . . will keep a watchful eye on sources of possible competition, direct and indirect." Potential competition, the competition of substitutes, a long-run concern over the welfare of customers, were all stressed as significant restraints.[31]

[28] *Ibid.*, p. 375.

[29] As explained in the preface to the 8th edition of the *Principles*, pp. xii–xiv.

[30] *Industry and Trade*, pp. 178, 196. Marshall's extensive pre-Chamberlin exposition of the theme of monopolistic competition is set forth by H. H. Liebhafsky in "A Curious Case of Neglect: Marshall's *Industry and Trade*," *Can. Jour. Econ. and Pol. Sci.*, Aug. 1955, XXI, 339–53.

[31] *Industry and Trade*, pp. 395–98, 405–09, 523–26.

Marshall saw also the restraining effect of product differentiation. Though it violates the purity of competition, it obstructs all arrangements for price control, which are difficult to bring about when products are not standardized. At the same time Marshall observed that standardized goods, which include "raw materials or half-finished products, or implements" used in business, are likely to be bought by firms that possess market power and "therefore are likely to meet the danger of oppressive action on the part of a combination, in control of things which they need to buy, by a counter-federation of their own. That is apt in its turn to stimulate the growth of similar federations on the part of traders or producers who need to buy some of their products; and so on till the end of the chain. . . . "[32] So "countervailing power," and the condition tending to produce it, received a respectful nod.

Nothing like the "classic model" seems to have been considered seriously by Marshall as a policy goal. Early industrial competition, back to Ricardo, had not resembled any sort of market ideal, though the contrary is now often assumed. It was rather the "aggressive competition" of "crude, though energetic men," a "species of warfare," and was not likely, as the preceding section indicated, to produce a "solid prosperity." For most of British industry Marshall found adequate the more restrained kind of competition, with the greater admixture of monopoly, which came in his day. Even in America, he thought, "Anglo-Saxon moderation and stability have enabled competitive and monopolistic abuses to be kept within relatively narrow limits, with but little direct intervention of authority." At the same time, monopoly was more dangerous than was generally realized, with greater menace in "monopolistic association" than in "monopolistic aggregations"; and a policy more positive than publicity, which he generally favored, might become necessary.[33]

With such spokesmen as Clark and Marshall writing in this vein, it is surprising that Schumpeter should have belittled neoclassical doctrine as he did. To him the competition of his predecessors was a "competition within a rigid pattern of invariant conditions," and not at all the competition of new and better products and processes that he thought important. He failed to note that this emphasis of his was essentially an unfolding of earlier thought and that he was quite in the earlier vein in saying of this latter competition that it "acts not only when in being but also when it is merely an ever-present threat . . . " and that "in many cases, though not in all, this will in the long-run enforce behavior very similar to the perfectly competitive pattern."[34] It is surprising, too,

[32] *Ibid.*, p. 549.

[33] *Ibid.*, pp. 179, 656, 400.

[34] Schumpeter, *op. cit.*, pp. 84–85.

that Schumpeter, in these allusions to traditional economics, failed to credit it with explaining the broad market and value structure that his theory implicitly relied on in circumscribing the distortions of crudely competitive markets. He saw the older economics not in its whole relevant expanse but only in its effort to sharpen particular relationships with the tools of static theory. In another context, however, that of his "socialist blueprint," he paid neoclassical economics the ultimate tribute of relying almost step by step on its essential structure in showing how socialism may solve the general problem of economy in using resources.[35]

IV. *Models and Policy*

There has been looseness at all times in perceiving the role of static models of competitive market operation. Such models are useful, indeed essential, in rendering manageable the numerous elements in the general problem of order in the economy. They supply the framework for tracing allocative effects of given practices and policies, and in this role provide a starting point in observing when market power is manifest. But static models may also mislead: through being supposed to reflect closely the actual processes of markets; through suggesting that they embrace all elements of welfare and afford a basis for judging economic performance as a whole; through tempting the user to toss all departures from their exact conditions into a common pot called monopoly and leading him, without guidance as to the seriousness of the deviations, into unhappy conclusions as to how the economy is working, or should be expected to work.

However, economists who seem at times to insist in supposed traditional fashion on near-perfect competition as a condition of acceptable economic performance may not carry this insistence into their more practical judgments. Galbraith supports his conception of earlier thinking by repeated use of Hayek's statement in *The Road to Serfdom* that "the price system will fulfill this function [of general control] only if competition prevails, that is, if the individual producer has to adapt himself to price changes and cannot control them." But the context of this statement does not imply purity of competition, since Hayek is only declaring the general superiority of control through markets over "central planning for the growth of our industrial system," which, he says, is by comparison "incredibly clumsy, primitive, and limited in scope." And he indicates that he finds acceptable a competition that can ordinarily be reconciled with the economies of size—one in which the firm, while it cannot control prices, can certainly influence them.[36]

[35] *Ibid.*, Ch. 16.

[36] F. A. Hayek, *The Road to Serfdom* (Chicago, 1944), Ch. 4. The first quotation is from p. 49 and is used by Galbraith, *op. cit.*, pp. 15, 35.

Pigou, with his elaborate concern over deviations from equality in marginal social net products, may likewise be thought of as intolerant of imperfect market adjustments. But Pigou was explicit that "simple competition," as he called it, is not feasible technically; and he preferred a limited antitrust approach, such as Clark favored, to a more drastic control of business.[37]

But even though they were not purists in their conception of adequate competition in a policy context, should not all these exponents of older thinking have been overwhelmed by the full impact of modern oligopoly theory? While granting some latitude to business decision in a dynamic system, could they digest the idea that business firms, separate but few in number, may so calculate each other's moves that they arrive at the price and output conclusions of the single monopolist? However loosely their frame of thought is construed, can modern markets be made to operate successfully within it?

The answer is yes, if we accept Clark and Marshall as spokesmen of earlier thinking and are not ourselves overwhelmed by the first approximations of modern theory. Indeed, without certain present insights, they came close to the spot where we now find ourselves, as conflicting insights begin to cancel out. Unworried by the neat logic of joint profit maximization when competitors are few, they were not bound to investigate the exacting and unusual conditions of that logic: its assumptions of a common view of demand and cost functions, of lack of aggressive desire for a larger share of markets, of standardization not only of products but of market terms in general, of pricing that is open and above-board, of absence of fear of new entries and substitute products and all the dynamic hurly-burly that Schumpeter made the center of his thinking. About the same position can be reached, in an unsophisticated way, without first falling into the oligopoly trap and then freeing one's self from it.

Thus the views mainly to be corrected are not those of the older economists. They had a fair sense of the impact of modern industry, and on tenable grounds held that markets might still exercise adequate control, while permitting desirable progress. Perfect competition must fail as a useful policy norm not merely because markets do not operate in that way but because we would not want them to. The views to be corrected now by theories of a "new competition" that is "workable," or even by theories of "countervailing power," are rather those of followers of Chamberlin who fell into the bad habit of equating competition with pure competition, of confusing theoretical benchmarks with

[37] A. C. Pigou, *The Economics of Welfare*, 4th ed. (London, 1950), Ch. 21. In this chapter Pigou notes the possible restraining effect of the countervailing power of opposed monopolies; but he doubts its effectiveness in protecting the public.

policy norms, of expecting highly monopolistic behavior in most markets where competitors are few.

Undoubtedly the study of markets has been revitalized in the last quarter-century. New theory has suggested what to look for, industry characteristics have been revealed with new significance, new insights into policy have been gained. But still, in the field of practical policy, these developments have worked little effective change; nor is it clear that they will. It has seemed useful, for instance, with competition and monopoly commingling over a wide range, to devise means of measuring the degree of monopoly in markets. Ingenious techniques have been contrived in the abstract, and there has been some attempt to apply them, especially in the case of concentration indexes. But one easily agrees with Machlup when, after reviewing these efforts, he concludes that such measurement is "even conceptually impossible," quite apart from its applicability.[38] Oligopoly theory seems less promising now than it once did, not only because of its profusion of elements but because factors other than numbers are seen to be widely significant.[39] It is almost shocking to recall the view of commentators after the *Tobacco* decision (1946) that this theory had therewith been made part of judicial standards and might properly dominate them in such cases.

The nature of policy problems forces us back toward the looser approach of earlier economists, and indeed of competent lawyers and judges. Even if we could measure degrees of deviation from pure competition, we would accomplish little unless pure competition were the market condition really desired—the condition that would promote a balanced achievement of diverse economic goals; and surely it is not. And even if we had a significant measurement, related to a truly optimum market norm, the policy question would remain: In a society in which ideal blueprints never materialize, what degree of departure from the norm is reasonably acceptable, in light of political as well as economic factors? More theory and more research will aid us; but there can be no answer except through the kind of experienced judgment always relied on in such matters.

Views differ greatly as to the desirable form and rigor of antitrust policy; but the differences do not really spring from a theoretical cleavage. They arise, as in the past, from dissimilar appraisals of incommensurable goals and market factors as seen in a framework that remains about the same. Economists who stress the nice equating of marginal results are more alarmed by monopoly elements than are

[38] Fritz Machlup, *The Political Economy of Monopoly* (Baltimore, 1952), Ch. 12, esp. pp. 526–28.

[39] See, for instance, Carl Kaysen in the National Bureau of Economic Research volume, *Business Concentration and Price Policy* (Princeton, 1955), p. 118.

economists who stress productivity and progress. The former have also a stricter idea of what reasonable profit means. Such groups may view differently the contribution of great firms in lowering costs and improving products, the competitive potency of product and technical substitutes, the need of market restraints to induce innovation and to prevent harmful price-cutting where reserve capacity accompanies growth. But these grounds for disagreement are as explicable in the theory of Clark and Marshall as of today.

To this point our theme has been developed without mention of John Maurice Clark, son of John Bates and leading formulator of the reasons why competition may be effective in an economy in which monopoly elements are common. In his well-known paper, "Toward a Concept of Workable Competition," Clark, it seems, was not trying to close a gap caused by failure of the older theory, but was concerned rather with recent refinements of the competitive model which, he said, "may serve as a starting point of analysis" but which, when used as a guide in approaching policy have "seemed at times to lead to undesirable results. . . ."[40] In a sense he bridged the periods by paralleling the exacting modern idea of pure competition with an equally sophisticated conception of the realizable and acceptable working of markets, and thus formulated with added fullness and precision a basis of policy toward which his father and his father's contemporaries were moving.

Elsewhere J. M. Clark has said, in writing of his father: "What may reasonably be asked of the theorists of the current generation is that they integrate their findings with those elements of the thought of the preceding generation which have enduring value, and which they tend to neglect."[41] The present theory of pure competition and of departures from it grows naturally out of the older static analysis of markets; present theories of workable competition, even when stretched to make room for elements of countervailing power, likewise particularize older thinking regarding feasible market operation under dynamic conditions. Analysis of this side of modern capitalism requires no revolution in economic thought.

[40] *Am. Econ. Rev.*, June 1940, XXX, 241; reprinted in *Readings in the Social Control of Industry* (Philadelphia, 1942), p. 453.

[41] "John Bates Clark," in H. W. Spiegel, ed., *The Development of Economic Thought* (New York, 1952), p. 612.

INTEREST RATES AND MANUFACTURERS' FIXED INVESTMENT

By FRANZ GEHRELS AND SUZANNE WIGGINS*

The postwar revival of monetary policy as an economic regulator in Britain and America has been accompanied by lively discussion and some new contributions to monetary theory. Important among them is the credit-rationing doctrine. Briefly, this is the doctrine that central bank operations on the money market affect investment, not mainly through the cost of credit, but through its availability. When the central bank pushes up the yields of short-term government securities, banks and nonbank lenders will increase the share of short-term governments in their portfolios at the expense of other earning assets. This action reduces reserves for the banking system as a whole and causes further restriction of loans to business borrowers. Conversely, when the central bank pushes down money-market rates, the decreased attractiveness of short-term yields, and the increase of reserves, will lead to increased availability of loan funds at relatively unchanging cost. In addition, it is sometimes argued that banks and nonbank lenders consider probable future movements of intermediate- and long-term security prices. The fear of capital losses induced by a rising pattern of interest rates may cause prospective bond purchasers to hold off until they expect no further rise of rates. At the same time, potential borrowers who expect to need additional credit in the future may become fearful of not getting suitable accommodation at a future date, and in consequence restrict their present borrowing and expenditure commitments.[1]

The foregoing argument implies that, under the credit-rationing hypothesis as under the classical interest-cost doctrine, there should be an observable negative relation between interest variations and investment. Only the *mechanism* relating interest and investment will be a different one under credit rationing from that under the older doctrine. Since security yields of different maturities usually move sympathetically, a variety of rates ought to show a significant relation to invest-

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[1] An extensive and provocative discussion of the credit-rationing doctrine is contained in two full issues of the *Bull. Oxford Inst. Stat.*, Apr. and May, and Aug. 1952 Vol. XIV.

ment. A number of them should be satisfactory barometers of the ease or difficulty of obtaining loans, which in turn affects the rate of investment.

However, empirical findings have usually been discouraging both for the classical and the modern view. Business executives, in answering questionnaires, have given low importance to the cost of borrowing and to the availability of outside funds.[2] Regression studies on investment either did not take the interest rate into account, or found that it had importance only for special types of investment, notably in railroads, utilities, and residential construction. Liquidity variables appeared unimportant in both types of studies.[3]

Here we shall present evidence that with the proper combination of explanatory variables, the appropriate time lags, and sufficiently short periods, an interest-investment relationship is present in the manufacturing sector as well. While the present writers are partial to the credit-rationing version of the interest-investment relation, the evidence presented below does not tend to refute the classical view. Rather, the evidence appears consistent with both descriptions of the regulating mechanism. However, the advocates of active monetary policy may derive only limited comfort from the evidence. For the time lags which seem to give the highest significance for interest rates are great enough to imply a difficult timing problem for monetary measures.

Section I gives some results of multiple-regression computations for fixed investment in the postwar period. Section II discusses the explanatory variables used. Section III gives estimates of the parameters in the structural demand equation derived from a two-equation model using the same data. Section IV summarizes some results on postwar manufacturers' inventories. Section V compares postwar monetary events with our time-lag hypothesis; and Section VI gives some findings on prewar fixed investment which agree in some respects with those for the postwar period in Section I.

I. *A Multiple Regression Computation: Postwar Fixed Investment*

Our examination of manufacturers' investment deals primarily with the period from the middle of 1948 to the middle of 1955. Taking this

[2] See W. Heller, "The Anatomy of Investment Decisions," *Harvard Bus. Rev.*, Mar. 1951, XXIX, 95–103; I. Friend and J. Bronfenbrenner, "Business Investment Programs and Their Realization," *Surv. Curr. Bus.*, Dec. 1950, XXX, 11–22; R. Eisner, *Determinants of Capital Expenditure*, University of Illinois Bull. (Urbana, 1956).

[3] See, in particular, J. Tinbergen, *Statistical Testing of Business Cycle Theories*, Vols. I and II (Geneva, 1939); L. Klein, *Economic Fluctuations in the United States*, 1921–1941 (New York, 1950); J. Meyer and E. Kuh, "Acceleration and Related Theories of Investment: An Empirical Inquiry," *Rev. Econ. Stat.*, Aug. 1955, XXXVII, 217–30; L. R. Klein and A. S. Goldberger, *An Econometric Model of the United States, 1919–1952* (Amsterdam, 1955); C. F. Christ, "Aggregate Econometric Models," *Am. Econ. Rev.*, June 1956, XLVI, 385–408.

period has a number of advantages: It leaves out the immediate postwar time of shortages, when the rate of investment depended mainly on the supply of equipment and materials. It has two periods of mild recession—1949 and 1953–54—followed by recoveries. Monetary policy was reflected in fluctuating interest rates, especially after 1950. Data are available from the Securities and Exchange Commission on manufacturers' liquidity from the second half of 1947.

We have concentrated on plant and equipment investment because this accounts for almost one-fourth of total capital formation in most years; the factors going into investment decisions for the entire sector are homogeneous; and it is an area where the interest rate has hitherto not been credited with much importance by empirical studies.

Of the numerous regression equations fitted by least squares, the two following gave the highest multiple correlations:

$$I_t = 1{,}812.6 + \underset{(.1181)}{.1326}\pi_{t-2} + \underset{(6{,}923)}{7{,}367}P_{t-2} - \underset{(74{,}230)}{130{,}540}R_{t-2} - \underset{(2193)}{3389}Q_t \qquad (1)$$

$$r = .9203$$

$$I_t = -3658.7 + \underset{(.1755)}{.1759}\pi_{t-2} + \underset{(11{,}260)}{9{,}218}P_{t-2} - \underset{(61{,}380)}{55{,}140}R_{t-2} - \underset{(2{,}843)}{3{,}204}Q_t \qquad (2)$$

$$r = .8640$$

I is plant and equipment outlay by manufacturing firms in real terms.

π is profits, deflated by wholesale prices excluding farm products and food.

P is the price index for capital goods, also deflated by wholesale prices.

R is the rate of interest—the industrial bond yield in equation (1), and the three-month treasury-bill yield in equation (2).

Q is the "quick ratio," the ratio of cash plus government securities to current liabilities for manufacturing firms only.

r is the multiple-correlation coefficient adjusted for degrees of freedom.

The periods are semi-annual. Aside from increasing the number of observations, taking six-month periods increases the homogeneity of the periods with respect to credit conditions. Three important turning points in monetary conditions occurred at midyear—in 1947, 1949, and again in 1953. Taking calendar years would have obscured these changes by lumping together half-years which are dissimilar, monetarily speaking. Some problem of seasonality may result; however, we did not regard this as serious enough to call for a correction.

The subscript t refers to the particular 6-month period. π_{t-2} is profits

in the six-months *ending* a year earlier, while R_{t-2} is the interest rate at the beginning of the period a year earlier; and Q_t is the quick ratio at the beginning of period t. Time lags of zero, six months, and one year were tried in a variety of combinations before equations (1) and (2) were arrived at. The 95 per cent confidence intervals are given in parentheses under the regression coefficients.[4]

With periods only six months in length the possibility arises of the deviation of investment from its predicted value depending on its deviation in the previous period. This would mean that the assumption of independence of the disturbances, made for least-squares computations, does not hold. We tested for serial correlation of the disturbances in equation (1) by taking the ratio of the mean-square successive differences to the variance, and found this to have a value of 3.08. From B. I. Hart's table of random probabilities for this ratio, we found that there is little ground for rejecting the hypothesis of no serial correlation, as the ratio is well beyond the 1 per cent significance level.[5]

The theoretical basis for lags of such length is that firms plan their major outlays for plant and equipment well in advance. It takes time to draft engineering plans, to negotiate with suppliers, to arrange financing, and to obtain agreement among those in the firm sharing responsibility for the decision. In large firms having more complex organizations the lapse of time is probably greater than in small-and medium-sized companies, and the lag is greater for large projects than small ones. Friend and Bronfenbrenner, on the basis of their questionnaire-survey, came to the conclusion that "aggregate expenditures for plant and equipment can be estimated one year ahead with reasonable accuracy on the basis of the amounts which businessmen anticipate spending."[6]

The variables relevant for decisions made a year, more or less, in advance would also be those prevailing around the time of decision rather than at the time the project is carried out. Thus the conditions under which funds are available, the prices of investment goods, and the level of profits prevailing around the time of the decision would seem more significant than those at the time of the investment itself. However, a subsequent sharp change in any of these variables may cause firms to modify their plans before they are carried out; if the period had been characterized by violent changes, our equations (1) and (2), with their long lags, might have given a much poorer fit.

[4] The two-tail t-test was applied to the liquidity and price coefficients; the one-tail test was applied to profits and interest, as their signs were assumed to be known a priori.

[5] See B. I. Hart, "Table of Probabilities for the Ratio of the Mean Square Successive Difference to the Variance," *Annals Math. Stat.*, 1942, XIII, 213.

[6] Friend and Bronfenbrenner, *op. cit.*, p. 11.

Figure 1 (for which Table I provides the data) compares the actual level of investment (solid line) with the levels predicted by equation (1) (broken line) and by equation (2) (dotted line). It shows that both equations successfully predicted the direction of all the substantial changes in investment, with the exception of the moderate downturn from the second half of 1951 to the first half of 1952. This failure may have been due to the abnormal situation created by the Korean boom and its aftermath. The rapid price-level rise had ceased, and inventory

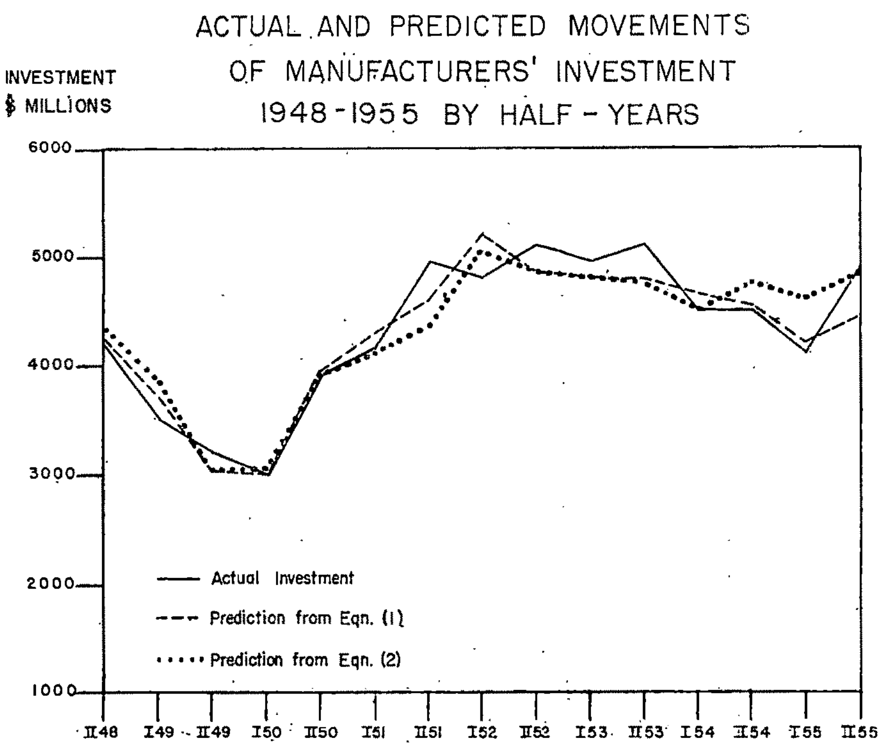

FIGURE 1

growth had diminished sharply, thus creating uncertainty and causing downward revision of investment plans. On the other hand, the drop of investment in 1949, and again in 1954, was correctly predicted; and the rapid increase of 1950–51 was successfully registered. Finally, both equations predicted the increase of investment for the second half of 1955; although understating the magnitude of the increase. Data for this period were not available when the equations were computed, and thus were not included in the time series.

II. *The Predicting Variables*

A. *The different rates of interest.* The industrial bond rate gives a substantially better fit than the treasury-bill rate probably for two reasons. It reflects conditions on a market to which the industrial borrower resorts directly, whereas the bill market is only an indirect indicator of the conditions facing him. In addition, the yield on industrial bonds is not a pure rate; it contains a variable risk premium which reflects changing business expectations of both borrowers and lenders. The significance of the bond rate is probably only in limited degree due to

TABLE I.—ACTUAL AND PREDICTED MOVEMENTS OF MANUFACTURERS' INVESTMENT 1948–1955

(in $ millions)

Period	Actual Investment	Prediction from Equation (1)	Prediction from Equation (2)
1948, II	4,216	4,270	4,373
1949, I	3,488	3,701	3,839
1949, II	3,220	3,061	3,042
1950, I	2,982	3,010	3,061
1950, II	3,893	3,974	3,890
1951, I	4,146	4,282	4,096
1951, II	4,968	4,595	4,371
1952, I	4,779	5,219	5,054
1952, II	5,096	4,829	4,843
1953, I	4,940	4,804	4,799
1953, II	5,110	4,790	4,756
1954, I	4,480	4,648	4,485
1954, II	4,500	4,572	4,738
1955, I	4,116	4,186	4,577
1955, II	4,903	4,474	4,863

its effect on the cost of borrowing; rather it serves as a good general barometer of the difficulty of getting funds from the capital market, banks, and institutional lenders.

In addition to the two rates above, we tested the yield on long-term government bonds. The regression equation gave a fairly good fit, but the explanatory variables had much weaker statistical significance than in the other two cases. This may indicate that, under present institutional arrangements, the short-term rate is a better indicator of credit conditions than the purest of the long-term rates. However, if the Federal Reserve were to operate in the bond market with the same objectives as it does today in the money market, bond yields might well become the better indicator.

It is of interest that the coefficient of the treasury-bill rate, though not significantly less than zero at the 5 per cent level, is significant at

the 10 per cent level. Central bank action to influence economic activity traditionally operates through short-term rates, which then exert a pull on the other markets for funds. However, it is at least a little disturbing that the effect of interest-rate changes on investment should have such a long time lag. The bill rate showed no significance with shorter lags. If changes in monetary policy have their main effect on an important segment of aggregate investment only a year hence, and much less effect on current capital formation, a difficult timing problem exists. Action is usually not taken until symptoms of recession or inflation actually appear; by the time the action has its main effect, conditions may have changed, and the measures taken may no longer be appropriate. Thus monetary tools appear subject to many of the same difficulties as the Keynesian fiscal tools; and the difficulties in the case of monetary policy may be more intractable, since they are due to the nature of investment decisions, rather than to outmoded administrative procedures.[7]

B. *Profits*. Profits make a good showing as an explanatory variable, whether taken for the six months immediately preceding the investment, one period earlier than this, or two periods. This is not surprising, as profits have a strong autoregressive tendency. However, it is of interest that profits for the six months ending *a year before* appear to serve so well for prediction.

It was difficult to decide on the deflator appropriate to obtain "real" profits. One might argue for deflation by the price index of investment goods, since it is real expenditure for investment that is being measured. It turned out that the multiple correlation coefficient was almost equally good whether one deflated profits by prices of investment goods or by wholesale prices. But the regression coefficients for profits and interest had better confidence intervals in the latter case.

C. *Prices of investment goods*. The price coefficient has the "wrong" sign in both regression equations above. Price has an influence on the rate of investment and in turn is influenced by investment; here the latter relation appears to be strong enough to make the coefficient positive. At the same time, the fact that lags of less than a year gave no significant relation implies that prices respond to the placing of orders, which may occur a year or more in advance of the investment, rather than to the investment itself.

While we have not found a correct demand equation for investment, the one-year lead of investment-goods prices over investment may

[7] The following comment, based on interview results, is found in Eisner, *op. cit.*, p. 34: "One lag to which the interviews called the writer's attention is that from the borrowing of money to its utilization in capital expenditures. This lag may apparently be fairly long. To the extent that it is, efforts to control the rate of investment by manipulating the money market and/or the rate of interest involve a serious complication, . . . "

make them a good predictor. For they reflect the volume of orders placed in advance of the investment.

D. *Liquidity*. The attempt to find any effect of liquidity on investment was unsuccessful. This was true for all time lags; and it appeared to make no difference whether the quick ratio was taken or the difference between current assets and total liabilities.

The approach used was probably not appropriate for testing the liquidity hypothesis; aggregate changes over time in liquidity of firms reflect changes in profits, dividend policy, taxes and rebates, attitude toward expansion, access to outside financing. It is probably only in special situations, such as the early postwar period, that one can find a positive relation between liquidity and investment.[8] At that time the business sector had acquired liquid funds involuntarily, and now the accumulated demand was released. The more liquid a firm, the better able it was to carry out expansion. However, even in this case one may surmise that sufficiently elastic bank credit might equally well have supported the whole of the investment boom that took place from 1945 to 1948.

It appears that, in the aggregate, liquidity changes are as much a consequence of investment decisions as they are a cause, because the amount of liquid holdings of firms is a residual. However, the SEC sample is dominated by the larger firms, and it may be that liquidity is more important for small firms, who have less easy access to outside funds.[9] When the large firms accumulate liquid assets, this may reflect pessimism about sales prospects and consequently a low rate of investment; when small firms accumulate funds, this may reflect plans to finance expansion out of internal funds.

The fact that liquidity with a negative sign shows significance when taken at the beginning of the period, but none when taken either six months or a year earlier, implies that the liquidity changes might be taken as a barometer of investment. If the other three variables have predicted, say, a rise of investment, a drop of liquidity would confirm that the investment plans are being carried out. A rise of liquidity in this situation might indicate that something had gone awry and had led to a change of plans.

However, liquidity *alone* as an indicator of investment for the immediately following period is not very reliable. For the first half of the

[8] See the comparison between postwar agricultural and industrial experiences made by R. N. McKean, in "Wartime Monetary Events and Monetary Theory," *Am. Econ. Rev.*, Proceedings, May 1952, XLII, p. 124–33.

[9] Internal availability of funds was important to the firms interviewed in Minnesota, and reported by Heller. Even when outside funds were available, the successful firms preferred delaying expansion to permitting outsiders to take part in the firm's decisions. See "Anatomy of Investment Decisions," *op. cit.*, p. 101–02.

period, to the end of 1951, liquidity performs rather well, only once moving in the same direction as investment. But for the second half, 1952 to 1955, it moved in the same direction four times in seven.

A fairly good, although poorer, fit is also obtained when liquidity is omitted from equation (1), and only profits, the industrial bond rate, and investment prices are taken. In this case the correlation coefficient is .8217, and the explanatory variables all appear highly significant. However, the lower correlation indicates that liquidity improves substantially the predictive value of the equation.

III. *An Estimate of a Structural Demand Equation*

While the foregoing regression equations both appear satisfactory for predicting investment, they are not satisfactory *demand* equations. For the price index of investment goods has been treated as an independent variable, although there is reason to believe that the prices of investment goods and the level of investment interact on each other. In addition, liquidity is probably dependent partly on investment, on profits, and perhaps on the rate of interest. However, in order to concentrate on the effect of interest variations, and in order to retain a simple model, we shall continue to treat liquidity as independent.

The interaction of investment and the prices of investment goods is taken into account by introducing an equation for the supply of investment goods:

$$I_t^s = a_0 + a_1 P_{t-2} + a_2 W_{t-2} \quad (a_1 > 0,\ a_2 < 0)$$

The supply of investment goods is assumed to be an increasing function of price and a decreasing function of the average hourly wage rate (W) in investment-goods industries, deflated by the wholesale price index. This gives us two equations in the two endogenous variables, investment and the price index of investment goods. By simple algebra we eliminate the price variable to give an equation for investment in terms of the exogenous variables only; then we eliminate investment to obtain an equation for price alone in terms of the same set of exogenous variables.

The two reduced-form equations are:

$$I_t = 6{,}570 + \underset{(.1276)}{.1092\pi_{t-2}} - \underset{(115{,}800)}{176{,}000R_{t-2}} - \underset{(2{,}490)}{3{,}647Q_t} + \underset{(3{,}880)}{2{,}972W_{t-2}} \tag{3}$$

$$r = .9007$$

$$P_{t-2} = .6057 - \underset{(.000007855)}{.000002514\pi_{t-2}} - \underset{(7.124)}{7.044R_{t-2}} + \underset{(.1241)}{.0210Q_t} + \underset{(.1934)}{.4347W_{t-2}} \tag{4}$$

$$r = .9222$$

The structural demand equation is then:

(5) $I_t^D = 2{,}430 + .1256\pi_{t-2} - 127{,}890R_{t-2} - 3{,}791Q_t - 6{,}837P_{t-2}$

The price coefficient now has the "correct" sign, for investment is a decreasing function of the price of investment goods. The price elasticity of demand is then computed to be -1.5970, that is, not much greater than unity. This finding is consistent with the widely held belief that demand for capital goods is not highly elastic.[10] However, as the price-slope coefficient is the ratio of the two wage coefficients, its reliability is rather less than that of either of these coefficients.

The process of getting back from the observed parameters in equations (3) and (4) to the structural parameters of equation (5) is comparatively easy providing that just one coefficient relating investment to an exogenous variable in (5) is zero. This condition is just met here because wages in the investment-goods industries are not included among the variables in (5), and the wage coefficient is therefore zero. We then solve first for the price coefficient, which is (with opposite sign) the ratio of the wage coefficient in (3) to that in (4). Each of the other coefficients is then found by adding to the corresponding one in (3) the product of the coefficient in (4) by the parameter already found for the price.

More formally, we can say that investment and the price variable are related to the exogenous variables in two independent ways, the observed relations of (3) and (4) and the structural relations of (5). We, in effect, eliminate investment and price by equating the right-hand sides of (3) and (4) combined, with the right-hand side of (5). This gives an aggregative equation in only the exogenous variables, which holds term-by-term as well as in the aggregate. When we take the separate equations, each in one term, we can solve for the structural parameters by factoring out the common term. One of these equations will be in a single unknown, and so we can use the solution of this equation to solve the others.

IV. *Postwar Manufacturers' Inventories*

It has sometimes been maintained that interest-rate variations have a stronger and quicker impact on inventory levels than on the rate of fixed investment.[11] In an attempt to find statistical support for this view, we have followed a procedure similar to that above for fixed investment.

[10] Eisner's interview results indicated that construction costs were "not a significant factor in determining the physical volume of investments." This finding, may, however, be due to the buoyant state of demand existing in 1951 and 1952, the time of interviews. At that time the business executives questioned believed that they could easily raise their product selling prices. See Eisner, *op. cit.*, p. 26.

[11] See, for example, R. G. Hawtrey, *Capital and Employment*, 2nd ed. (London, 1952), pp. 45–54.

Profits, interest, and the quick ratio were taken as the determining variables, with the level of inventories as dependent. On the assumption that profits vary rather closely with the price level, we have omitted price as an explicit variable.

Profits when taken for the six months immediately preceding had a negative coefficient, perhaps indicating that inventories over short periods act as a buffer to unanticipated sales variations. When taken for the period ending six months earlier profits had a positive coefficient, perhaps indicating that inventories are adjusted positively with profits and sales expectations, when enough time is allowed for the adjustment.

The market yield on treasury bills had a positive coefficient whether taken instantaneously or six months earlier. Thus there was no evidence of interest influencing the level of stocks.

As in the case of fixed investment, the quick ratio had a negative coefficient for both time lags, but had the higher significance when taken with a zero time lag. As with fixed investment the explanation is probably that liquidity *reflects* changes in holding of stocks, rather than being an important cause of such changes.

V. *Comparison with Postwar Monetary Events*

While there is nothing conclusive about such an examination, a cursory review of postwar monetary events may show whether there are obvious contradictions between our time-lag hypothesis and the events. The large dips in investment occurred in early 1949 and early 1954; the big upswings were in the middle of 1950 and the fall of 1955. On the other hand, significant credit restraints were effective in the middle of 1947, the middle of 1949, late in 1952, and early in 1953. Measures to ease credit were undertaken in mid-1949 and the fall of that year, and in the summer and fall of 1953.

The sharpest tightening of credit in the postwar, pre-Korea period came in the summer and early fall of 1947. Up to the summer treasury bills, certificates, and bonds had been pegged. When the pegs were removed, the bill rate jumped immediately from 3/8 per cent to nearly 1 per cent, and the other rates moved up more gradually until December, when they leveled off. The year 1948 saw only slight further increases. If there had been an immediate impact on investment one would have expected to see it in the fall of 1947 rather than at the end of 1948. However, this episode does not contradict our hypothesis of the one-year lag.

Efforts to ease credit conditions did not occur until 1949 when the recession was already under way. After a reduction of reserve requirements in the spring, the Open-Market Committee announced in June that henceforth its operations would have "primary regard to the gen-

eral business and credit situation."[12] However, their actions appear not to have been very aggressive; for although industrial bond yields declined substantially, treasury-bill rates fluctuated little. Again, there is no evidence of any effect of these changes on investment until almost a year later, in the late spring of 1950.

In the boom that followed the outbreak of Korean hostilities successive measures of monetary restraint, at first hampered by Treasury refunding, led to a slow but continued rise of security yields. Nevertheless, manufacturers' fixed investment rose to the end of 1951 and then maintained itself at a high level; activity generally behaved in a similar fashion. Once more, the time lag between monetary changes and the investment response, if any, appeared considerable.

A fourth episode is that from 1953 to 1955. Security yields were pushed up during the first half of 1953; then the authorities reversed themselves in June, driving yields down again sharply and holding them low until 1955. Manufacturers' investment remained above the previous year's level during the fall of 1953; but industrial output declined, owing probably to involuntary accumulation of inventories, in turn caused by lagging consumer demand.[13] Investment fell in 1954 and dropped further in the first half of 1955, thus lagging behind production both in the decline and in the recovery. Again, whatever effect tightening and then relaxing credit in 1953 had on investment, the impact seems to have been felt in the two succeeding years.

VI. *Prewar Investment*

A statistical analysis of manufacturers' fixed investment in the period 1933 to 1940 yielded results in some respects similar to and in others notably different from those obtained for the 1948–55 period. The one-year time lags as used in the previous case gave a fairly satisfactory fit when the industrial bond rate was used, but a much poorer one when the treasury bill rate was taken. However, in both cases the interest rate appeared to be significant and had the proper negative sign. Profits and prices of investment goods both appeared significant when the bond rate was used; but, in contrast to the postwar observations, both carried a negative sign. Because of the difficulty of obtaining appropriate liquidity data, we omitted any liquidity variable. The regression equation employing the bond rate is as follows:

$$
\begin{aligned}
I_t &= 6{,}490 - \underset{(323.5)}{438.5}\pi_{t-2} - \underset{(21{,}010)}{49{,}520}R_{t-2} - \underset{(3{,}715)}{2{,}964}P_{t-2} \qquad (6)\\
r &= .7566
\end{aligned}
$$

[12] See the *Fed. Res. Bull.*, Dec. 1949, XXXV, 1435.

[13] See the *Fed. Res. Bull.*, Feb. 1954, XL, 126.

In contrast to the postwar period, the best fit was not obtained from the use of one-year lags. When the determining variables were dated at the beginning of the period, profits took a positive sign, price became quite insignificant and interest retained the negative sign but with a lower significance. With six-month lags, profits had a negative sign but low significance, while interest and price both had negative signs and appeared highly significant. Both of these choices of lags gave multiple correlation coefficients of about .83.

These differences from the postwar period may be due to structural differences affecting inducements to invest between a period of prolonged depression and one of general prosperity. During most of the 1930's substantial excess capacity existed; an increase of sales, reflected in profits, would therefore not be a strong inducement to create additional capacity. On the other hand, there was probably strong pressure for cost-reducing investment, particularly in low-profit years. Such a thesis would explain the negative regression of investment on profits, and also the apparently greater strength of investment-goods prices as a determinant of investment.

The reason that profits moved from negative to positive in sign, as the profit variable was moved closer to investment in time, may be that profits became a *reflection* of investment through the multiplier, rather than a determining variable.[14]

Finally, the poor fit obtained when the treasury bill rate was employed may be due to the predominantly cheap-money policy after 1933. Bill rates showed little absolute variation around their very low yield and thus were not a satisfactory variable for statistical purposes.

VII. *Summary*

1. In order of statistical significance, variations in yields on industrial bonds, on treasury bills, and on government bonds appear to have an effect on manufacturers' fixed investment, but only with a one-year lag. The explanation offered for the relationship is that considerable time elapses between initial planning and carrying-out of investment, and that interest rates serve as indices of credit availability.

2. The prices of capital goods appear to affect the rate of fixed investment, but the coefficient of price elasticity found was not very much greater than one.

3. We were unsuccessful in finding the expected causal connection between liquidity and investment outlay; but this result was probably due to incorrect specification of the model for this purpose.

[14] More exactly, as profits have a fairly high degree of autoregression, those in period $t-1$ would move with those in period t. The latter would be a function of the rate of aggregate investment in period t, which has determined the level of national income through the multiplier.

4. Inventories showed a relation to profits and liquidity, but not to the rate of interest.

5. Prewar fixed investment did not show as sharply defined a lagged response to the exogenous variables as did postwar capital outlay: both one-year lags and shorter lags gave satisfactory fits, with the profits coefficient changing sign according to the lag. This suggests that our simple model may have good predictive value for a period of general prosperity and moderate fluctuations, but that it may have less value for a period of depression and great uncertainty.

NOTES ON DATA AND SOURCES

A. *Postwar fixed investment.* (1) Investment data were taken from the *Survey of Current Business*, "New Plant and Equipment Expenditures, Manufacturing." They were expressed in millions and deflated by the average price index during the period for machinery and motive products, also from the *Survey*. (2) Corporate profits were taken from the Securities and Exchange Commission *Quarterly Financial Report for Manufacturing Corporations*. They were deflated by the wholesale price index for the period following for "commodities other than farm products and food," from the *Survey*, and expressed in millions. (3) The quick-ratio data are also from the SEC *Quarterly Reports*. (4) The price of investment goods is the same index as in (1) above, but deflated by the wholesale price index used in (2), above, so as to give *relative* price. (5) The interest data are from the *Federal Reserve Bulletin*. (6) Average hourly earnings in durable-goods-industries are from the *Survey*.

B. *Postwar inventories.* Inventory data, seasonally adjusted, are from the *Survey*. They are at lower of cost or current market price; we have deflated them by the same wholesale price index as above.

C. *Prewar fixed investment.* (1) Profits, *Survey*, Supplements, 1936, 1938, 1952. (2) Interest rates, Board of Governors, *Banking and Monetary Statistics*, 1943. (3) Price of investment, wholesale price index of metals and metal products, from the *Survey*, and deflated by wholesale prices. (4) Investment in plant and equipment from "Capital Expenditure for Manufacturing Plant and Equipment," *Survey*, March, 1951, deflated, as above, by wholesale prices.

GROWTH IN CAPACITY AND CANADA'S BALANCE OF PAYMENTS

By James C. Ingram*

The purpose of this paper is to point out the way in which changes in productive capacity may have affected the Canadian balance of payments during the period 1900 to 1913. It is not to be claimed that change in capacity was the sole or even the predominant factor in the adjustment process, but that it was a powerful force which has been largely omitted from the principal studies of the period.[1] When it is used to supplement these earlier studies, the explanation of Canadian experience becomes neater and more complete. Some facts, hitherto unsatisfactorily explained, are accounted for. The modification suggested here for a particular case also has implications for the theory of transfers whenever net capital formation is involved.

In his classic study of the Canadian episode, Viner tested the traditional theory of adjustment derived from Thornton and Mill.[2] On the whole he found this theory, or its implications, to be consistent with the facts, with some qualifications for institutional peculiarities. This theory is too familiar to require restatement here, and we shall give only the barest outline of it.

An initial equilibrium is disturbed by an increase in loans to Canada from foreign sources. Under the gold standard the increased supply of foreign exchange drives the exchange rate to the gold-import point; the inflow of gold causes the Canadian money supply to rise; and consequent price changes cause imports to rise, exports to fall.[3] In this way the trade balance is turned against Canada, thus enabling the real transfer of capital to occur. Viner found that movements of reserves held in New York largely replaced gold flows in the Canadian case. Aside from this,

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[1] G. M. Meier, "Economic Development and the Transfer Mechanism," *Can. Jour. Econ. Pol. Sci.*, Feb. 1953, XIX, 1–19, explicitly connects Canadian expansion and the balance-of-payments adjustment. The reader is referred to this article for a carefully documented record of economic growth in the period.

[2] Jacob Viner, *Canada's Balance of International Indebtedness, 1900–1913* (Cambridge, Mass., 1924). See esp. Ch. 7, 9.

[3] Throughout this paper we shall use the terms "exports" and "imports" to refer to the total credits and debits on current account except for interest and dividends.

in all major respects he considered the observed events to be a confirmation of the theory.[4]

Later writers added an "income effect" to this analysis.[5] The inflow of funds causes money income and expenditure to rise in Canada and, as income rises, imports rise still further and exports fall. This addition helped to explain the speed with which the adjustment process worked and the relatively small gold flows required to accomplish the real transfer.[6]

There is, however, one significant flaw in this analysis, at least for the Canadian experience from 1900 to 1913. Both the classical and the modern parts of the theory of adjustment yield a prediction that exports will decline, but the indubitable fact is that Canadian exports rose steadily from 1900 to 1913. The rise in imports exceeded the rise in exports and thus enabled the real transfer to take place, but a modification of the theory is required to enable it satisfactorily to account for this sequence of events.[7]

The traditional theory of transfers makes no real distinction between a reparations payment and a capital movement. This is true for both the income approach and the price-specie-flow analysis. An inflow of funds is expected to set in motion changes in prices and incomes through which a real transfer is effected, but the productive resources of the receiving nation are tacitly assumed to remain unchanged during the adjustment process.[8] In some cases this procedure may be justified, but where the inflowing funds form part of an economic process in which the productive resources are fundamentally changing, the theory is inevitably incomplete. Indeed, it may be that the inflow of funds is itself induced by such changes in the economy, and thus the structural changes become an integral part of the transfer mechanism. If the theory of transfers dealt only with the very short run, the omission might be justifiable. But where, as in the case under examination, the transfer process though a number of years is being studied, the omission is a serious defect in the analysis.

[4] This does scant justice to the careful and thorough analysis that won Viner's study an important place in the literature of international economics.

[5] See, *e.g.*, L. A. Metzler, "The Theory of International Trade," in H. S Ellis, ed., *Survey of Contemporary Economics* (Philadelphia, 1948), Vol. I, pp. 211–22.

[6] These matters puzzled Taussig, as he suggested in a famous passage. *International Trade* (New York, 1928), p. 239.

[7] This does not imply that a theory must be realistic in all details. But it should yield accurate implications for the essential aspects of reality. The contention is that the behavior of exports is one of the essential aspects of the theory being examined.

[8] The income approach permits changes in utilization, and both approaches take into account shifts in resources; but neither considers change in total resources.

I. *Economic Growth and the Balance of Payments: A Simple Model*

Viner advanced the hypothesis that the disturbing factor in the period 1900–1913 was an increase in the flow of funds into Canada, and the problem he wished to examine was the response in the Canadian economy to this initial disturbance.[9] An alternative hypothesis, equally if not more plausible, is that the rapid expansion of the Canadian economy after 1900 created investment opportunities and attracted an inflow of funds. Of course it is true that if the foreign funds had not been forthcoming the Canadian boom would have been halted, and thus the two forces are inextricably linked together over the whole period. Still it may be argued that domestic expansion in Canada was the initial disturbance.[10]

Fortunately we do not have to settle this question of priority. Under either hypothesis, we can argue that the expansion of productive capacity during the period enabled supply to expand, enhanced Canada's ability to export, reduced the pressure to import, and thus influenced the adjustment in the balance of trade. That the trade balance nevertheless turned against Canada simply indicates a rate of expansion so rapid that the demand effects exceeded the supply effects of that expansion, thus necessitating a continued (and rising) inflow of capital if the rate were to be sustained. Domestic expansion and capital inflow may be regarded as coordinate, and we need not choose one causal sequence or the other.

The writer has tried to show elsewhere that there exists a rate of increase in domestic investment which a nation can maintain with no inflow of capital or loss of exchange reserves.[11] If the nation exceeds this rate it must import capital or lose exchange reserves.[12] The essential idea is a simple one, and represents an application of the Harrod-Domar[13] theory of equilibrium growth to the balance of payments.

Let us assume that resources are fully employed at every point in time during the period to be studied. If population (and the labor force) is growing, if net capital formation is taking place, and if previously

[9] Viner, *op. cit.*, pp. 16, 145.

[10] Meier, *op. cit.*, takes this view. He points out that expansion began in earnest in 1895, though no capital inflow appeared until 1905. In the three decades prior to 1895 Canada imported capital, however.

[11] "Capital Imports and the Balance of Payments," *So. Econ. Jour.*, Apr. 1956, XXII, 411–25.

[12] We assume fixed exchange rates and thus rule out the third possibility, a fall in the value of its currency.

[13] R. F. Harrod, *Towards a Dynamic Economics* (London, 1948); E. D. Domar, "Expansion and Employment," *Am. Econ. Rev.*, Mar. 1947, XXXVII, 34–55, and "The Problem of Capital Accumulation," *ibid.*, Dec. 1948, XXXVIII, 717–94.

unused land is brought into use, the full-employment output will grow over time. The increase in capacity in year t (compared to year $t-1$) we will call $I_{t-1}\cdot\sigma$, where I_{t-1} represents net investment in year $t-1$, and σ is the ratio of the increment in output to the increment of capital.[14] We will assume σ to be constant. The term $I_{t-1}\cdot\sigma$ represents the increment in aggregate supply in year t. Part of this increase in output will be purchased by domestic consumers or by businessmen for new capital formation. That portion not taken by domestic buyers we assume to be exported, and world demand is assumed to be of such high elasticity that no fall in price is required. We assume the marginal propensity to consume to be constant fraction, equal to $(1-s-m)$ where s is marginal propensity to save, m is marginal propensity to import. The portion of the increment in supply that is available for increase in domestic investment and for export thus equals $I_{t-1}\cdot\sigma(s+m)$. That is, if ΔX is the increase in exports:

$$\Delta I + \Delta X = (s + m)I_{t-1}\cdot\sigma, \tag{1}$$

and

$$\Delta X = (s + m)I_{t-1}\cdot\sigma - \Delta I.$$

Exports and domestic capital formation are competing uses for the excess of new supply over domestic consumption.

The rise in money income we take to be equal to $I_{t-1}\cdot\sigma$, and we have $Y_t = Y_{t-1} + I_{t-1}\cdot\sigma$, where Y_t is aggregate money income in the year t. The rise in imports[15] is:

$$\Delta M = m\cdot I_{t-1}\cdot\sigma. \tag{2}$$

If we impose a condition that $\Delta X = \Delta M$, we have, from (1) and (2):

$$(s + m)I_{t-1}\cdot\sigma - \Delta I = m\cdot I_{t-1}\cdot\sigma.$$

$$\frac{\Delta I}{I_{t-1}} = s\cdot\sigma. \tag{3}$$

That is, the rate of growth the economy can achieve with no adverse movement in the balance of trade is equal to $s\cdot\sigma$.[16] If the rate of growth

[14] The increase in output is not attributable solely to the increase in the stock of capital. Instead, the contributions of increases in labor force and in land utilization are included in σ.

[15] Here we assume a constant marginal propensity to import. Actually, it might not be constant, as in the case of investment in import-competing industries.

[16] This is comparable to Domar's conclusion for a closed economy. It differs from the author's previous statement (*op. cit.*) because of a difference in an underlying assumption. There it was assumed that annual increases in investment produced a multiplier effect upon money income and output *in addition to* the rise in income associated with the expansion of capacity. Here we are assuming the annual increase in investment generates a rise in income that just keeps pace with the expansion of capacity. Essentially, the present formulation expands σ to take account of the growth in factors of production other than capital. If properly stated, both methods will yield the same result.

in domestic investment exceeds this limit, the trade balance will turn passive. Exports may rise, but not so much as imports.[17]

Under the assumption that the authorities permit an expansion of the money supply sufficient to permit money incomes to rise by the same proportion as output rises, we have a basis for predicting the behavior of income, exports, and imports. After estimating values for s, m, and σ, we may take the *actual* values for annual investment and obtain predictions for the variable under study.

The domestic expansion is likely to lead to changes in prices which will further strengthen the effects described above. Expected price changes are in every way consistent with those indicated by conventional analysis. We do not challenge this part of the accepted analysis; we wish merely to supplement it. To show the suggested supplement in the most forceful way, we shall assume that no price changes occur. Even in this extreme case the necessary balance-of-payments adjustment may take place, and in a more "realistic" case, where price changes are permitted, the adjustment process becomes much easier to explain.

II. *Application of the Model to Canada, 1900–1913*

The rapid growth of the Canadian economy in the period 1900 to 1913 is well known. The labor force was augmented by a large natural increase as well as by heavy immigration. A vast supply of unused fertile land existed, large amounts of which were drawn into use as population grew and transport facilities were extended. The rate of capital formation was high, and tended to rise during the period. Table I contains some statistics which illustrate the growth in productive capacity. Buckley[18] has estimated that gross national product rose from an aggregate of \$5.65 billion for the five-year period 1901–05 to \$8.48 billion for the period 1906–10 and to \$12.18 billion for the period 1911–15.

It seems clear that the full employment output rose steadily over the period. Although minor recessions of economic activity occurred, especially in 1904 and 1908, our assumption of full employment is not too wide of the mark.

Using Buckley's estimates of gross national product and Viner's estimates of imports,[19] we obtain an estimate of the marginal propensity

[17] When ΔI is so great that ΔX is zero, we have:

$$\Delta I = (s + m) \cdot I_{t-1} \cdot \sigma$$
$$\frac{\Delta I}{I_{t-1}} = (s + m) \cdot \sigma.$$

At this rate of growth, imports rise but exports do not, because domestic demand rises enough to purchase the whole of the increment in supply. If the rate of growth were still greater, exports would decline.

[18] K. A. Buckley, *Capital Formation in Canada, 1896–1930* (Toronto, 1955), p. 135.

[19] Viner, *Canada's Balance*, Pt. I., *op. cit.* We omit interest and gold imports from Viner's figures.

TABLE I.—SELECTED INDICATORS OF GROWTH

	1901	1906	1911
Population[a]	5,371,000	6,171,000	7,207,000
Labor force[b]	1,783,000		2,724,000
Value of capital in manufacturing[c]	$447,000,000	$846,000,000	$1,247,000,000
Value of product in manufacturing[c]	$481,000,000	$718,000,000	$1,166,000,000
Area of occupied land (acres)[d]	63,000,000		110,000,000
Value of agricultural capital (ex. land)[e]	$780,000,000		$1,705,000,000
Value of agricultural output[e]	$365,000,000		$ 663,000,000
National index of urban building activity (1900=100)[f]	120	409	797

[a] 1901, 1906—*Canadian Yearbook*, 1931; 1911—*Sixty Years of Canadian Progress, 1867–1927* (Ottawa, 1927).
[b] *Canadian Yearbook*, 1915.
[c] *Canadian Yearbook*, 1905, 1909, 1913.
[d] *Canadian Yearbook*, 1913.
[e] Board of Inquiry into the Cost of Living, Canada, *Report of the Board* (Ottawa, 1915), Vol. II, Ch. 3.
[f] Buckley, *op. cit.*, p. 141.

to import of 25 per cent. Buckley's work also suggests a marginal propensity to save of 15 to 20 per cent. We shall use 15 per cent. On the basis of slender statistical evidence concerning incremental changes in output and capital, some of which is contained in Table I, we set $\sigma=.5$. We assume a one-year gestation period. Annual estimates of fixed capital formation are given by Cairncross,[20] who obtained them from Buckley. This series is an unsatisfactory one to use as "investment" in our model on three counts: it is gross, not net; it excludes inventory changes which are not available on an annual basis; and it excludes government capital formation except in government enterprises. Nevertheless it is the best available series. The most serious omission is inventory change; the other defects may partly counteract each other.

Given the actual amount of domestic investment and the assumed values for s, m, and σ, we may calculate ΔY, ΔX and ΔM for the years 1900 to 1913. These projections are shown in Table II. If we take the actual value of exports and imports in 1900 as a starting point, we may use the calculated changes to project total imports and exports for each year of the period. These projections are also exhibited in Table II, along with the projected balance on current account (cols. 7–9).

The projections made on the basis of our simple model may now be compared with the actual figures. The latter are given in Table II, cols.

[20] A. K. Cairncross, *Home and Foreign Investment, 1870–1913* (Cambridge, Eng., 1953), p. 45. Cairncross' essay (Ch. 3 in this volume) is an excellent account of the Canadian episode 1900–1913. He stresses the growth in the economy, but despite his introduction he does not explicitly incorporate changes in capacity into the balance-of-payments mechanism.

TABLE II.[a]—ACTUAL AND PROJECTED EXPORTS AND IMPORTS

(millions of Canadian dollars)

Year (1)	Gross Domestic[b] Investment (2)	ΔI (3)	ΔY $(=I_{t-1}\cdot\sigma)$ (4)	ΔM $(=m\cdot\Delta Y)$ (5)	ΔX[c] (6)	Total Imports[d] (projected) (7)	Total Exports[d] (projected) (8)	$(X-M)$ (projected) (9)	Total Imports[e] (actual) (10)	Total Exports[e] (actual) (11)	$(X-M)$ (actual) (12)
1900	179	—	—	—	—	203	206	3	203	206	3
1901	187	8	89	22	28	225	234	9	213	230	7
1902	229	42	93	23	−5	248	229	−19	240	253	13
1903	284	55	114	28	−9	276	220	−56	290	268	−22
1904	288	4	142	36	53	312	273	−39	282	240	−42
1905	329	41	144	36	17	348	290	−58	314	280	−34
1906	407	78	164	41	−12	389	278	−111	374	328	−46
1907	476	69	203	51	12	440	290	−150	445	336	−109
1908	424	−52	238	59	147	499	437	−62	368	333	−35
1909	500	76	212	53	9	552	446	−106	439	363	−76
1910	576	76	250	62	24	614	470	−144	539	385	−154
1911	686	110	288	72	5	686	475	−211	623	394	−229
1912	810	124	343	86	13	772	488	−284	786	470	−316
1913	829	19	405	101	143	873	631	−242	833	567	−266

[a] In the projections it is assumed that $s=.15$, $m=.25$, $\sigma=.50$.

[b] Cairncross, *op. cit.*, p. 45. Inventory changes are omitted from this series.

[c] Change in exports $=(s+m)I_{t-1}\cdot\sigma-\Delta I$.

[d] The actual figure for 1900 is used. It is taken from Viner, *Canada's Balance*, Pt. I. Interest and dividends, and imports of gold coin are omitted.

[e] *Loc. cit.* Interest and dividends, and imports of gold coin are omitted.

10–12. Actual exports rose in most years, but not so rapidly as did imports, and the current account deficit widened during the period. Our projections display trends similar to those of the actual figures. This may be seen in Figure 1, where actual and projected exports and imports are compared, and in Figure 2, where the actual and projected balances on current account are shown graphically.

The model clearly produces a behavior of exports, imports, and balance on current account that corresponds well with the observed experience. Explicit allowance for the role of growth in capacity thus supplies an explanation for the flaw in conventional analysis.

Our model is also consistent with the known facts about the state of the money market in Canada, whereas the conventional model is not. If the causal sequence were to run from an influx of foreign funds to a rise in the supply of money, and then to the effects thereby involved, it would imply an initial increase (and subsequent additional increases) in the supply of funds such that downward pressure would be exerted on the interest rate. Money would be easy. This is the direct opposite of what we find, however. This was a period of tight money and rising rates of interest, which suggests that domestic expansion was at least coordinate with the inflow of foreign funds if not the leading cause of the observed events.

Viner was of course aware of Canada's growth. He refers to a suggestion put forward by the Dominion statistician, R. H. Coats,[21] that the price behavior and capital inflow might be the results of domestic expansion in Canada, but Viner gives this argument short shrift. He says, in a curiously dated passage, that:

> If expansion . . . in a given country was financed from domestic savings, it would simply mean . . . that those having purchasing power were voluntarily shifting their demand from consumers' goods to producers' goods and from labor engaged in producing consumers' goods to labor engaged in industrial development. What might be expected to happen would be that producers' goods would rise and consumers' goods would fall in price. The general price level should not be affected by this change in the character of the demand. On the other hand, if the expansion was financed by borrowings from abroad, there would still be available the normal supply of consumers' goods, the extra supply of goods and labor necessary for the industrial development being provided directly or indirectly by the lending country. Insofar as the industrial expansion *per se* was concerned, there would again be no obvious reason why prices should rise more rapidly in this than in other

[21] Board of Inquiry into the Cost of Living, *Report of the Board, op. cit.* This remarkable state document contains a thorough analysis of the nature and causes of Canadian expansion and inflation in the period 1900–1913. Emphasis is placed upon the expansion of productive capacity in explaining the rise of prices and the adverse balance of trade.

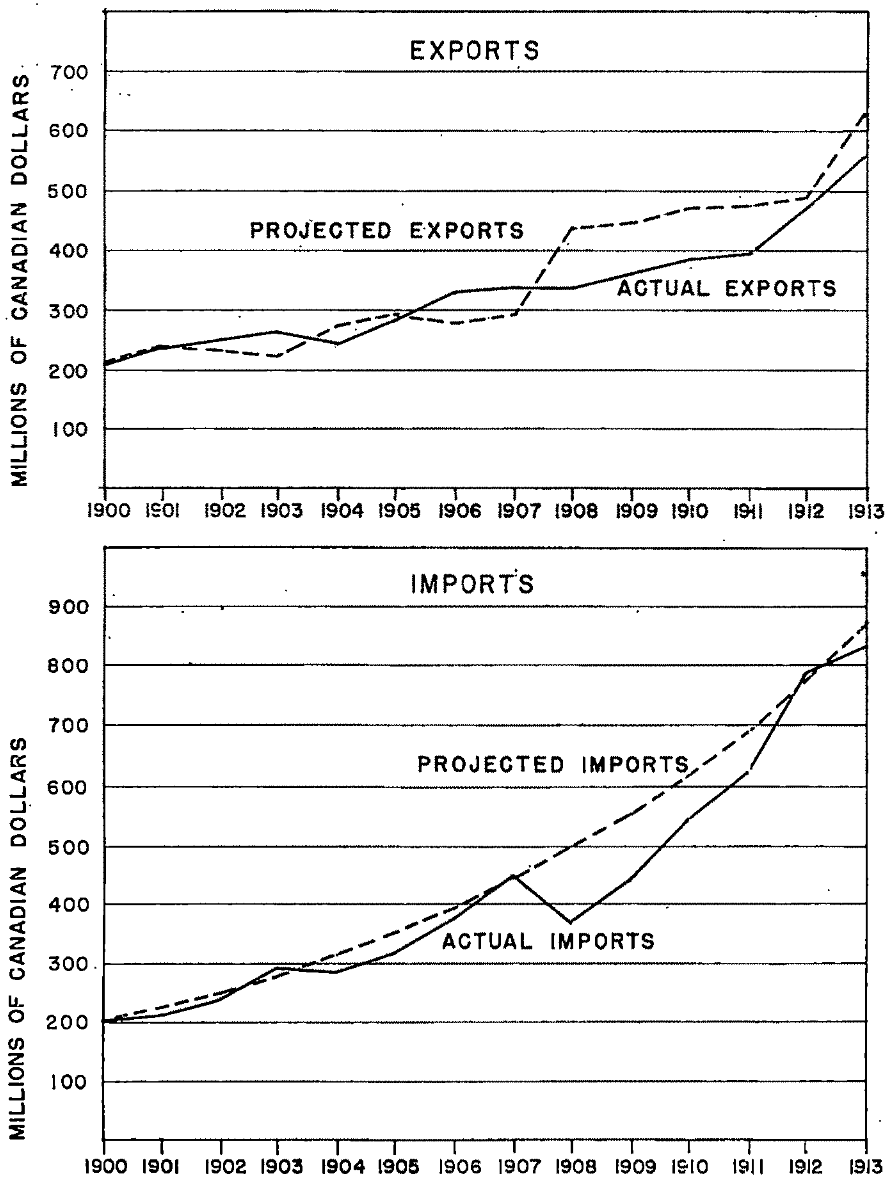

FIGURE 1. ACTUAL AND PROJECTED EXPORTS AND IMPORTS
Source: Table II.

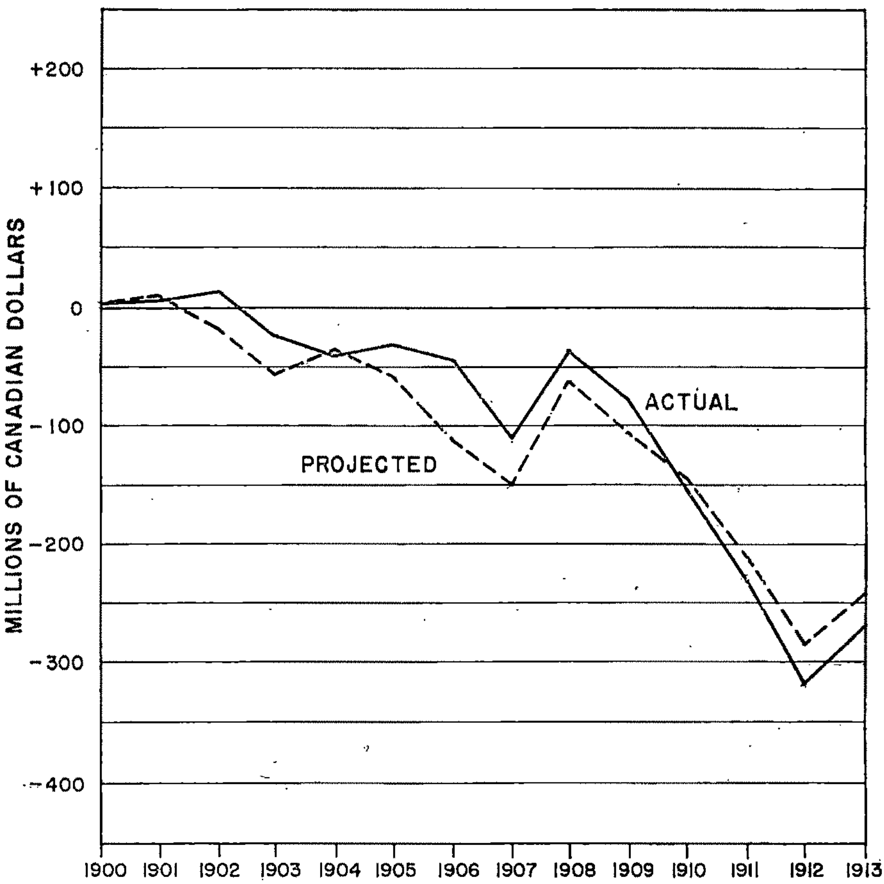

FIGURE 2. CURRENT ACCOUNT BALANCE (ADJUSTED)
Source: Table II.

countries, and there would even be some reason for expecting a relative fall in prices.[22]

Viner appears to deny that an increase in aggregate demand is possible, even in the short run. He suggests that an increase in demand for capital goods can occur only if demand for consumers' goods is simultaneously reduced—except when an inflow of foreign funds occurs—and thus he sees no way for Canadian industrial expansion to cause rising prices or to affect the balance of payments. Our thesis is that the expansion of aggregate demand may cause incomes and prices to rise and this, though modified by the expansion of supply, may cause an

[22] Viner, *op. cit.*, p. 249.

adverse trade balance to appear. Unless an inflow of foreign capital then occurs, the domestic expansion will be halted.[23]

Viner recognized that exports did not behave as his theory would indicate. He discussed this briefly, but devoted much more space to the argument that exports were "checked" by the capital inflow—that is, exports rose less than they would have risen in the absence of the capital inflow.[24] This is a difficult comparison to make, however, because the *ceteris paribus* assumption cannot hold. Had the capital inflow not occurred, the rate of expansion would have been smaller, productive capacity would have grown less rapidly, and exports might have been smaller, not larger. If the capital inflow could be separated from the process of growth in the Canadian economy, Viner's argument would be valid. Our contention is that the two are inseparable so far as the analysis of Canadian experience in this period is concerned, though not theoretically.

Except for his discussion of the "check" and "restrictive effect" of capital inflow on exports, Viner does not grapple with the fact that exports rose in both volume and value. He notes that the theory calls for a fall in exports and says: "The general expansion of industry and trade operated independently of the influence of the capital borrowings, to increase both imports and exports."[25] But, since industrial expansion and capital borrowing are closely related, as Viner himself recognizes, it would seem necessary to incorporate both factors into a theory of balance-of-payments adjustment.

If Canadian investment had risen more rapidly than it did, our theory suggests that demand might have risen enough to reduce exports. But in such a case capacity would also have risen more rapidly, and in time the supply effects would have caught up with the demand effects—unless, of course, the rate of increase in investment was sustained. On the other hand, a smaller rate of growth could have been achieved with no adverse balance of trade, and hence with no capital inflow.

III. *Limitation on Results*

The preceding demonstration that Canadian balance-of-payments experience can be explained without reference to price changes will not lead us to claim that price movements were of minor importance. No such suggestion is made here. Nor is the relatively good fit considered to be particularly significant. Both Viner and Meier explicitly rejected

[23] We do not insist that domestic expansion must be the leading cause, but merely that it is possible. Viner denies the possibility.

[24] Viner, *op. cit.*, pp. 261 ff.

[25] *Ibid.*, p. 261.

any attempt to use the available statistics for precise analytical purposes, and we have no wish to venture into this forbidding area. All we have shown is that it is *possible* for Canadian expansion to affect the balance of payments in a manner consistent with the observed facts. Intermingled with the price and income effects of conventional analysis, we suggest that there is a capacity effect whose presence adds to the clarity and completeness of the theory.

Some efforts were also made to analyze other decades of Canadian experience and to demonstrate the role of the capacity effect through time. In most cases, however, powerful forces were present whose effects were so dominant that they obscured the issue. It became ever more apparent that Taussig and Viner had indeed chosen an ideal "laboratory case" for the study.

For the period 1933 to 1941 it is possible to distinguish the capacity effect. Gross investment rose rapidly and steadily in these years, and there was a surplus on current account.[26] Exports rose more than imports did. The size and changes in the current-account balance were consistent with our general hypothesis, and price movements were not very substantial.

The experience following the second world war also seems consistent with our theory. Investment has been high and (with occasional exceptions) rising every year. In the early postwar years Canada had a surplus on current account, and exports steadily rose to match or exceed the rise in imports. Later the rate of expansion (and also heavy government outlays) outstripped the capacity effect and Canada began to experience a deficit on current account and an inflow of foreign capital. Even in these years (1950–52) exports continued to rise.

[26] *National Accounts Income and Expenditure, 1926–1950*, Canada, Bureau of Statistics (Ottawa, 1953); *The Canadian Balance of International Payments, 1926 to 1948*, Canada, Bureau of Statistics (Ottawa, 1949).

INPUT-OUTPUT COEFFICIENTS AS MEASURES OF PRODUCT QUALITY

By HANS BREMS*

It has long been recognized that the nonprice variables in the theory of the firm are at least as important as the price variable. But the road to a satisfactory quantitative treatment of those variables has been blocked by the following dilemma. Some aspects of product quality and selling effort are thought of as being nonquantitative. As far as selling effort is concerned, this difficulty traditionally has been overcome by using not selling effort itself but selling-effort expenditure, which is always quantitative, as the variable to be optimized. If this were a satisfactory approach, it could obviously be used for nonquantitative aspects of product quality, too. But it is not a satisfactory approach for selling effort any more than for product quality, for selling effort and product quality are both multidimensional. Moreover, from the point of view of demand, alternative dimensions may be substitutional. For example, quantity sold might rise if the input of aluminum were to be substituted for the input of steel, or if television advertising were substituted for magazine advertising. It is not enough, then, to seek the optimal total expenditure. Somewhere in the firm, a decision-maker must know exactly how far to go in each particular dimension of quality and selling effort.[1]

* The author is professor of economics at the University of Illinois. For encouraging criticism of earlier drafts of this paper he is grateful to Carl F. Christ, Sven Danö, Robert Dorfman, Wassily Leontief, Nörregaard Rasmussen, Frederick Williams, and Frederik Zeuthen.

[1] Most of the literature fails to answer this question. Chamberlin, in his *Monopolistic Competition*, was the first to ask it but felt that the answer would be hampered by the small extent to which quality might be reduced to quantitative terms. He now thinks that the extent was definitely underestimated in *Monopolistic Competition; cf.* his "The Product as an Economic Variable," *Quart. Jour. Econ.*, Feb. 1953, LXVII, 8. Four other prominent contributions have assumed either that quality and selling effort are both one-dimensional or that the expenditure on quality variation and selling effort can be taken to represent quality itself or selling effort itself, *i.e.*, H. v. Stackelberg, "Theorie der Vertriebspolitik und der Qualitätsvariation," *Schmollers Jahrbuch*, 1939, LXIII, 43–85; L. Abbott, "Vertical Equilibrium under Pure Quality Competition," *Am. Econ. Rev.*, Dec. 1953, XLIII, esp. 830–31; R. Dorfman and P. O. Steiner, "Optimal Advertising and Optimal Quality," *ibid.*, Dec. 1954, XLIV, esp. 827, 832; and A. Rasmussen, *Pristeori eller parameterteori* (Copenhagen, 1955), pp. 195, 203. But Stackelberg and Dorfman-Steiner clearly saw and solved the substitution problem as between quality as a whole and selling effort as a whole. A refined graphical solution of the substitution problem as between different advertising media was offered twenty years ago by Børge Barfod, *Reklamen i teoretisk-økonomisk Belysning* (Copenhagen, 1937). Two contributions have solved the substitution problem as between all the dimensions of quality and selling effort, *i.e.*, T. Scitovsky, *Welfare and Competition* (Chicago, 1951), n. 7, 259, and my own *Product Equilibrium under Monopolistic Competition* (Cambridge, Mass., 1951), Ch. 5.

The present paper suggests that certain assumptions developed by Leontief for entirely different purposes may provide a satisfactory solution to the dilemma just described. Quality and selling effort can simply be defined as a complete specification of the production and distribution process of the product in question. Such a complete specification has two elements in it. First, a specification of the following form. To produce and sell the physical quantity X_j per unit of time of the product of the jth industry takes the input of the physical quantity x_{ij} per unit of time of the product of the ith industry, including labor, where $i=1 \cdots m$. Such inputs are purchasable and have prices attached to them, and they should not be confused with their own properties.[2] A specification of the inputs can also be stated in terms of input *coefficients* as follows. To produce and sell the physical quantity X_j per unit of time of the product of the jth industry takes the input of a_{ij} physical units of product of the ith industry per unit of product of the jth industry.

Under Leontiefian assumptions, for a given product, a_{ij} is independent of the level of output X_j. Precisely for that reason we are free to let a_{ij} represent quality and selling effort. If the Leontiefian assumptions were not used, we would not know whether a change in a_{ij} would reflect a change in the level of output or would reflect a change in the quality of the product or the selling effort accompanying it. Leontiefian assumptions exclude the former possibility. Thus a change in the input coefficient for labor will always reflect a change in the workmanship of the product, a change in the input coefficient for a certain material will always reflect a change in the product property depending upon that material, say purity, hardness, tensile strength, heat resistance, etc. Even for selling effort, in fact, such an approach comes very close to the businessman's mode of thinking. There is some evidence that most businessmen try to maintain a constant proportion between advertising and sales.[3] They would think of an increase in that proportion as more intensive selling effort, of a decrease as less intensive selling effort.

The second element needed for a complete description of how to produce and distribute the product is a specification of the order in time of the inputs. Certainly it would do no good to perform the process of,

[2] H. B. Chenery, in "Engineering Production Functions," *Quart. Jour. Econ.*, Nov. 1949, LXIII, 507–31, and "Process and Production Functions from Engineering Data," *Studies in the Structure of the American Economy* (New York, 1953), 297–325, has emphasized the distinction between the inputs and their properties. The former are purchasable and have prices, the latter do not. The former are called "physical inputs" or "economic quantities," the latter are called "engineering variables."

[3] R. W. Jastram, "Advertising Outlays under Oligopoly," *Rev. Econ. Stat.*, May 1949, XXXI, 106–09. Similar findings are reported by the Committee on Price Determination, National Bureau of Economic Research in *Cost Behavior and Price Policy* (New York, 1943), Ch. 9.

say, painting an automobile body by first applying the baked enamel, then two primer coats, and finally doing the bonderizing. The timing, however, is frequently so obvious that no explicit reference to it is found. Such is the case in the Leontief system.

I. *The Model*

Everything now being measurable, we can make the theory of non-price competition every bit as quantitative as, say, the theory of production. The following notation will be used:

a_{ij} = the number of physical units of the product of industry i absorbed per unit of product of a firm in industry j.
c_j = the number of dollars of cost incurred annually by a firm in industry j.
p_j = the number of dollars of profits earned annually by a firm in industry j.
π_i = the price of the input absorbed from industry i, a parameter.
π_j = the price of the output produced by a firm in industry j.
x_{ij} = the number of physical units of the product of industry i absorbed annually by a firm in industry j.
X_j = the number of physical units of product produced and sold annually by a firm in industry j.

Our firm in industry j is assumed to produce only one product and to absorb as inputs the products of industry i, where i stands for m industries, including labor. The first fundamental equation needed in our analysis is the demand equation faced by the firm:

$$X_j = X_j(\pi_j, a_{ij}) \text{ for } i = 1 \cdots m. \tag{1}$$

The equation says that demand depends upon price and all the input coefficients. Directly, of course, the consumer's attitude is determined by his appraisal of the appearance and expected performance of the product, but the latter, in turn, are determined by the complete specification of the production and distribution process of the product as revealed by the list of input coefficients. Doing some violence to reality we shall assume that the demand equation (1) is continuous and differentiable.

The second fundamental equation in our analysis is the cost equation, also assumed to be continuous and differentiable:

$$c_j = \sum_{i=1}^{m} (\pi_i x_{ij}), \tag{2}$$

where:

$$x_{ij} = a_{ij} X_j \text{ for } i = 1 \cdots m. \tag{3}$$

Equation (2) is a definitional equation. When interpreted in the Leontief tradition, equation (3) becomes a behavior equation. In this tradition, for a given product, the input coefficient a_{ij} is not allowed to vary with the level of output. Only under this assumption are we free to let a_{ij} represent quality and selling effort. Taking (2) and (3) together, we can write cost as:

$$c_j = X_j \sum_{i=1}^{m} (\pi_i a_{ij}). \tag{3a}$$

Finally, we need the definitional equation saying that profits equal revenue minus cost:

$$p_j = \pi_j X_j - c_j. \tag{4}$$

II. *Quality Equilibrium*

Let us vary one input coefficient a_{ij} in isolation, and let us take the partial derivative of profits p_j with respect to that input coefficient a_{ij}:

$$\frac{\partial p_j}{\partial a_{ij}} = \pi_j \frac{\partial X_j}{\partial a_{ij}} - \left[\pi_i X_j + \frac{\partial X_j}{\partial a_{ij}} \sum_{i=1}^{m} (\pi_i a_{ij}) \right].$$

Here, the a_{ij} appearing under the summation sign is the general a_{ij} where, as indicated, $i=1 \cdots m$. The three other a_{ij}'s, outside the summation sign, represent the specific input coefficient now being varied in isolation.

Now let η_{ij} be the elasticity of demand[4] faced by the firm in industry j with respect to the input coefficient a_{ij}. Setting the above partial derivative equal to zero and rearranging, one gets:[5]

$$\eta_{ij} = \frac{\partial X_j}{\partial a_{ij}} \frac{a_{ij}}{X_j} = \frac{\pi_i a_{ij}}{\pi_j - \sum_{i=1}^{m} (\pi_i a_{ij})} \tag{5}$$

This result can be expressed as follows: The input of the product of the ith industry into the product of the jth industry should be adjusted in such a way that the expenditure for that input per unit of output of the jth industry divided by the profit per unit of output of the jth

[4] Our η_{ij} is not identical with the η_c used by Dorfman and Steiner, *op. cit.*, p. 833 and defined as the percentage change in demand to the percentage change in *average cost*, both induced by a small change in quality. Comparison of our results with those of Dorfman-Steiner may be facilitated by the following comparison of notation: Our quality index is a_{ij}, theirs is x; our product price is π_j, theirs is p; our demand function is $X_j = X_j(\pi_j, a_{ij})$, theirs is $q=f(p, x)$; our unit cost is $\sum_{i=1}^{m} (\pi_i a_{ij})$, theirs is $c=c(q, x)$. To the extent that our problems are identical with theirs, solutions are identical, too.

[5] *Cf.* Rasmussen, *op. cit.*, p. 203.

industry equals the elasticity of demand faced by the firm of the jth industry with respect to the input coefficient a_{ij}. So far, this sounds rather complicated; but paradoxically, things get much simpler as the analysis is extended.

That the partial derivative of profits p_j with respect to the input coefficient a_{ij} is zero is a necessary, but not a sufficient, condition for profit maximization. We must also show that the second derivative of profits p_j is negative, *i.e.*, that:

$$\frac{\partial^2 p_j}{\partial a_{ij}^2} = \frac{\partial^2 X_j}{\partial a_{ij}^2}\left[\pi_j - \sum_{i=1}^{m} (\pi_i a_{ij})\right] - 2\pi_i \frac{\partial X_j}{\partial a_{ij}} < 0.$$

Over the relevant range, let it be assumed that the quality-quantity relationship can be illustrated by a curve similar to the one shown in

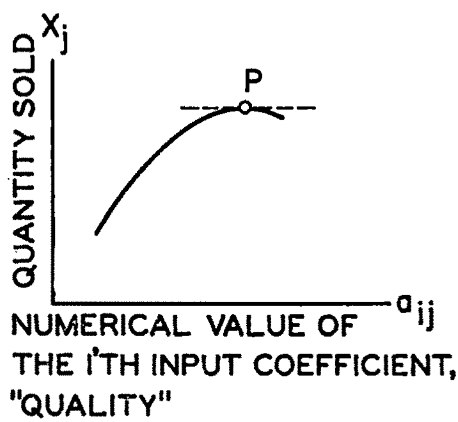

FIGURE 1

Figure 1. Here, as any input coefficient a_{ij} is increased, quantity X_j should become less and less responsive to it. Such an assumption is reasonable both for quality and for selling effort. While consumers seem to appreciate an increase of the horsepower of a passenger car from 150 to 200, they could not possibly use an increase from 500 to 550. Selling effort, no doubt, too can be increased *ad nauseam*. Consequently, the second derivative of X_j with respect to a_{ij} is negative. The expression in brackets represents profit per unit of output which is positive. The entire first term, then, is negative. In the second term, π_i is positive, and up to the point P, the first derivative of X_j with respect to a_{ij} is positive. Consequently, in that range, the entire second derivative of profits p_j is negative, and we have a true maximum.

If not one but all dimensions of quality and selling effort are manipulated, equation (5) holds simultaneously for *any i*. Write it in the form:

$$\text{(5a)} \qquad \frac{\pi_i}{\dfrac{\partial X_j}{\partial a_{ij}}} = \frac{\pi_j - \sum_{i=1}^{m} (\pi_i a_{ij})}{X_j}$$

holding for any i. Consequently, we can write:

$$\text{(5b)} \qquad \frac{\pi_1}{\dfrac{\partial X_j}{\partial a_{1j}}} = \frac{\pi_2}{\dfrac{\partial X_j}{\partial a_{2j}}} = \cdots = \frac{\pi_m}{\dfrac{\partial X_j}{\partial a_{mj}}}.$$

Consisting of m equations, one for each dimension of product and selling effort, system (5a) of simultaneous equations represents the solution of the substitution problem: How far should quality and selling effort be carried in each particular one of the m possible dimensions? System (5a) and (5b) could never, of course, have been formulated had not every dimension of quality and selling effort been made quantitative.

Equation (5b) says that in equilibrium, quality has been improved and selling effort been intensified, in each of the m possible dimensions, until the ratio between the price of an input and the marginal "productivity" of the corresponding input coefficient is the same for all m inputs. The similarity to the neoclassical theory of production and distribution is evident. But there are two differences. First, "productivity" is productivity in selling, not just in producing. Second, condition (5b) runs in terms of input coefficients, not just inputs.

Once every dimension of quality and selling effort has been made quantitative, a clear meaning can be attached to the concept "quality elasticity of demand," and the concept can be put to good use. We said that equation (5) must hold for any i. Adding together all the m versions of the equation one gets:

$$\text{(6)} \qquad \mathrm{H} = \sum_{i=1}^{m} \eta_{ij} = \frac{\sum_{i=1}^{m} (\pi_i a_{ij})}{\pi_j - \sum_{i=1}^{m} (\pi_i a_{ij})}.$$

The meaning of this aggregate elasticity H, the sum of all the elasticities η_{ij}, can be clarified by the following hypothetical operation. Let the first input coefficient a_{1j} rise by one-nth of its numerical value and watch the effect upon quantity sold X_j. Next, let the second input coefficient a_{2j} rise by one-nth and watch the effect upon X_j. Continue in this way all through the m input coefficients. If n is sufficiently large, say 1,000, then the order in which we are increasing the a's does not

matter. Consequently, the sum H of all the m elasticities is equal to the number of $n$ths by which X_j would rise when *at the same time* every a_{ij} is increased by one-nth. In this aggregative sense, the concept "quality elasticity of demand" does have a clear quantitative meaning. Let us now rewrite (6) in the form:

$$\sum_{i=1}^{m} (\pi_i a_{ij}) = \pi_j \frac{H}{1 + H} \qquad \text{(6a)}$$

which says that in equilibrium, unit cost should be carried, by means of quality improvement and intensification of selling effort, up to the point where it amounts to the fraction H/(1+H) of the price of the product. Equation (6a) runs in terms of unit cost relative to price, presumably in accordance with modes of thinking among businessmen, rather than in marginalist terms. This, however, should not conceal the fact that the present analysis is a thorough-going marginalist one. H is a sum of partial derivatives in disguise, consequently equation (6a) is an equation of margins. After all it was derived from a summation of (5) which, in turn, was based upon profit maximization by partial derivation. Equation (6a) includes unit cost only because under Leontiefian assumptions unit and marginal costs are equal. The relationship expressed by (6a) is shown graphically in Figure 2.

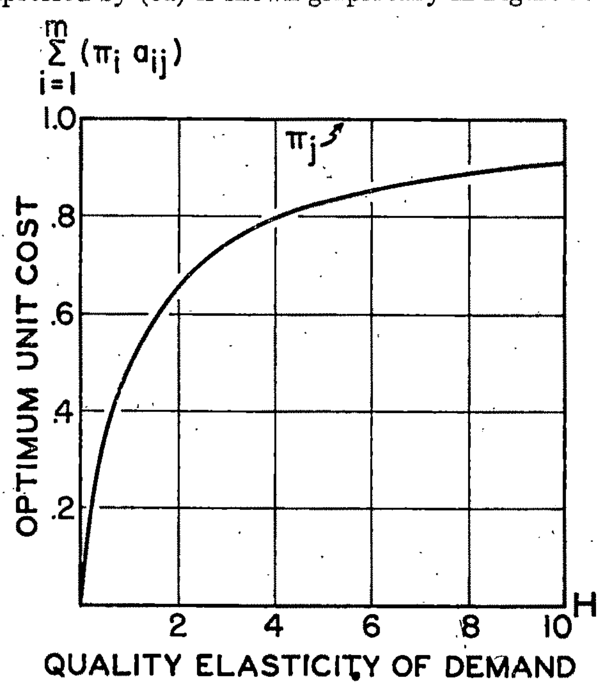

FIGURE 2

III. *Price Equilibrium*

Let us now vary price π_j in isolation, and let us take the partial derivative of profit p_j with respect to the price π_j:

$$\frac{\partial p_j}{\partial \pi_j} = \pi_j \frac{\partial X_j}{\partial \pi_j} + X_j - \frac{\partial X_j}{\partial \pi_j} \sum_{i=1}^{m} (\pi_i a_{ij}).$$

Now let e be the familiar Marshallian price elasticity of demand faced by the firm in industry j. Setting the partial derivative above equal to zero and rearranging, one gets:

$$e = \frac{\partial X_j}{\partial \pi_j} \frac{\pi_j}{X_j} = - \frac{\pi_j}{\pi_j - \sum_{i=1}^{m} (\pi_i a_{ij})}. \tag{7}$$

This result can be expressed as follows: The price π_j of the product of the jth industry should be adjusted in such a way that the price π_j divided by the profit per unit of output of the jth industry equals the Marshallian price elasticity of demand with opposite sign.

That the partial derivative of profits p_j with respect to the price π_j of the product is zero is a necessary, but not a sufficient, condition for profit maximization. We must also show that the second derivative of profits p_j is negative, *i.e.*, that:

$$\frac{\partial^2 p_j}{\partial \pi_j^2} = \frac{\partial^2 X_j}{\partial \pi_j^2}\left[\pi_j - \sum_{i=1}^{m} (\pi_i a_{ij})\right] + 2 \frac{\partial X_j}{\partial \pi_j} < 0.$$

Over the relevant range, let it be assumed that the relationship between price and quantity sold can be described by a straight line with negative slope, *cf.* Figure 3. In that very special case, the second derivative of X_j with respect to π_j is zero. The expression in brackets represents profit per unit of output which is positive. The entire first term, then, is zero. In the second term, the derivative of X_j with respect to π_j is negative, so the entire second derivative of profits p_j is negative, and we have a true maximum. If the price and quantity-sold relationship were not a straight line but a curve concave to the origin, the second derivative of X_j with respect to π_j would be negative, and so both terms would be negative. If the relationship were a curve convex to the origin, the first term would be positive, but if the convexity were moderate, the positive first term would be small and still be outweighed by the negative last term.

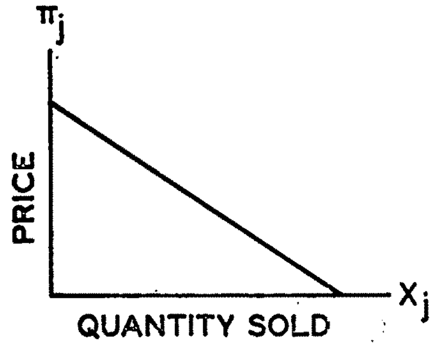

FIGURE 3

Write (7) in the form:

$$\pi_j = \frac{e}{1+e} \sum_{i=1}^{m} (\pi_i a_{ij}) \tag{7a}$$

which says that in equilibrium, price should be marked up to the point where it amounts to $e/(1+e)$ times the unit cost of the product, where e is the Marshallian price elasticity of demand for the product. Unlike (6a), (7a) is old and familiar.[6] Like (6a), (7a) runs in terms of unit cost relative to price, better understood by the businessman, but is really just as marginalist as the former. The relationship expressed by (7a) is shown in Figure 4.

IV. *Full Equilibrium*

If price and all dimensions of quality and selling effort are to be optimized, equations (6a) and (7a) will both have to be satisfied at the same time. Taking them together, one gets:

$$e + \mathrm{H} = -1. \tag{8}$$

This very simple result says that in equilibrium, *i.e.*, when everything has been fully adjusted, the sum of the price elasticity and the quality elasticity of demand, the latter defined in Section II above, should equal -1. The relationship expressed by equation (8) is shown graphically in Figure 5.

Equation (8) is a condition for full equilibrium, but in the real world, even disregarding ignorance, is it always possible to satisfy it? Under

[6] Joan Robinson, *The Economics of Imperfect Competition* (London, 1933), p. 54, says that monopoly optimum price is equal to marginal cost multiplied by $\epsilon/(\epsilon-1)$. Since (1) her ϵ is the numerical value of Marshallian price elasticity, so that $\epsilon=-e$, and (2) under Leontiefian assumptions unit and marginal costs are equal, our formula (7a) is identical with Joan Robinson's formulation.

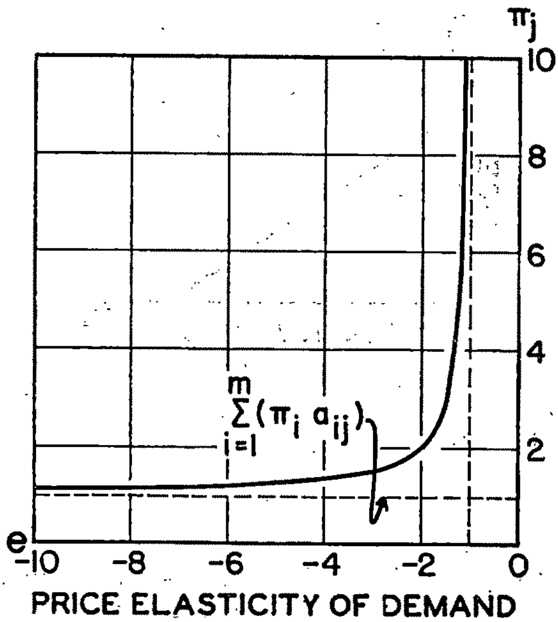

FIGURE 4

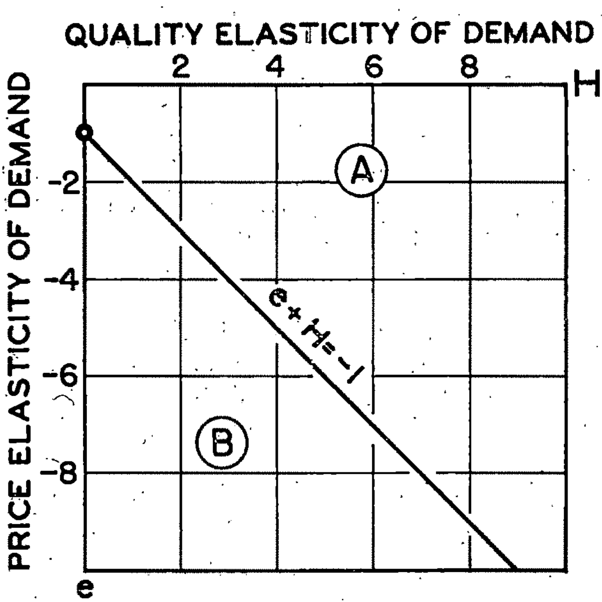

FIGURE 5

our assumptions, not unreasonable, it appears to be possible to satisfy equation (8).

First, it was assumed that the quality-quantity relationship could be illustrated by a curve similar to the one shown in Figure 1. Here, as any input coefficient a_{ij} is increased, quantity X_j should become less and less responsive to it. This being true of all input coefficients, at low numerical values of all the a_{ij}'s, the quality elasticity of demand, H, will be high but will become progressively lower, the higher the a_{ij}'s. Eventually it will turn negative (*cf.* point P in Figure 1).

Second, it was assumed that the relationship between price and quantity sold could be approximately described by a straight line with a negative slope (Figure 3). Here the Marshallian price elasticity of demand, e, at a high price π_j will be numerically in excess of unity and will be progressively higher, the higher the price. At a low price π_j it will be numerically less than unity and will numerically become progressively lower, the lower the price.

If these assumptions can be accepted, there *is* a solution satisfying equation (8). If the firm finds itself in the region A, where $e+\text{H}>-1$, it will be able to approach the line marked $e+\text{H}=-1$ in Figure 5 simply by raising both its price and its quality, still seeing to it that the system of equations (5a) is satisfied. In Figures 6 and 7 the effects of such simultaneous raising of price and quality are indicated. Figure 6 shows the usual price-quantity relationship. Raising the quality of the product will shift the price-quantity curve upwards. But since the quality elasticity of demand, H, has been assumed eventually to become progressively lower as a_{ij} rises, the demand curve must shift less and less than in proportion as a_{ij} rises. Eventually, raising price and quality simultaneously must take us into an area in which the price elasticity of demand is numerically extremely high.

Figure 7 shows the corresponding phenomenon on the quality side. Raising the price of the product will shift the quality-quantity curve downward. But since the price elasticity of demand, e, has been assumed eventually to become numerically progressively higher as π_j rises, the demand curve in Figure 7 must shift more and more than in proportion as π_j rises. Eventually, raising price and quality simultaneously must take us into an area in which the quality elasticity of demand is extremely low. But if the negative price elasticity e becomes numerically higher and higher, and if the positive quality elasticity H becomes lower and lower, a point must eventually be reached in which equation (8) is satisfied.

Similarly, if the firm should find itself on the other side of the line marked $e+\text{H}=-1$, *i.e.*, in region B (Figure 5), where $e+\text{H}<-1$. The firm can approach the line by reducing its price and its quality, again

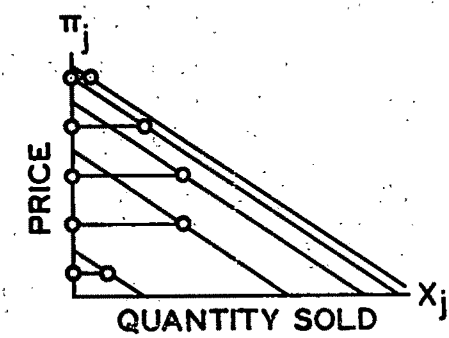

FIGURE 6

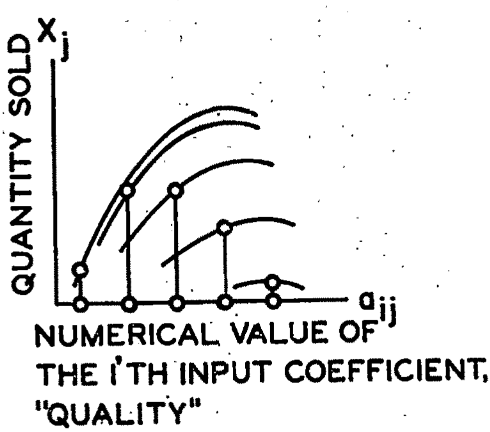

FIGURE 7

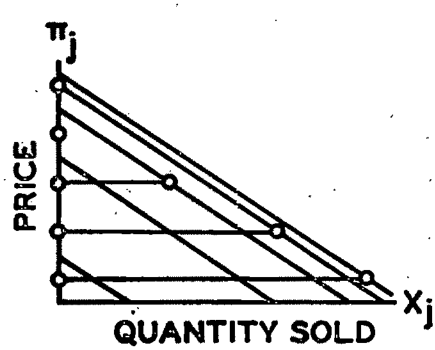

FIGURE 8

seeing to it that the system (5a) is satisfied. Price elasticity will go down numerically, and quality elasticity will go up.

On a priori grounds, one cannot rule out the possibility of several points existing at the same time satisfying equation (8). Suppose we have found one such point, located upon the line shown in Figure 5. Suppose, then, that we raise the quality and reduce the price of the product. Figure 8 shows the price-quantity relationship. Raising the quality of the product will shift the price-quantity curve upwards. But since the quality elasticity of demand, H, has been assumed eventually to become progressively lower as a_{ij} rises, the demand curve must shift less and less than in proportion as a_{ij} rises. Eventually, therefore,

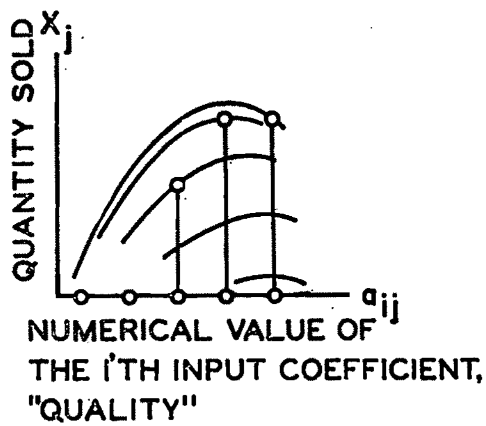

FIGURE 9

therefore, reducing price but raising quality simultaneously must take us into an area in which the price elasticity of demand is numerically quite low.

Figure 9 shows the corresponding phenomenon on the quality side. Reducing the price of the product will shift the quality-quantity curve upward. But since the price elasticity of demand, e, has been assumed eventually to become numerically progressively lower as π_j falls, the demand curve must shift less and less than in proportion as π_j falls. Eventually, reducing price but raising quality simultaneously may thus take us into an area in which the quality elasticity of demand is also quite low, while equation (8) is still satisfied.

V. *Limitations and Conclusion*

The Leontiefian assumption that for a given product, a_{ij} is independent of level of output represents our first limitation. It should be noted, however, that two restraints on the firm included in the model do oper-

ate somewhat like diminishing returns in the production function: first, the assumption that as price π_j is lowered, the numerical price elasticity will become progressively lower; and second, the assumption that as the input coefficient a_{ij} is increased, quantity sold X_j will become less and less responsive to it.

Like the static Leontief model, our model is ill-equipped to cope with those inputs that consist in the services rendered by durable capital stock. In a treatment of product quality this kind of input is likely to be quite important. Quality can be manipulated not only by varying workmanship or materials but also by varying the shape of things. Tools and dies will then have to be discarded and new ones installed. Such tools and dies will introduce the problem of indivisibilities, and they may well force us to abandon our assumption that the demand and cost functions are continuous and differentiable.

Another obvious limitation is the static profit-maximization assumption and the complete exclusion of rivals and their behavior, expected and real.

These limitations are common to most treatments of nonprice competition. The decisive difference between the approach suggested here and other approaches is that the adoption of the Leontiefian input-output coefficients as measures of product quality and selling effort will make the theory of nonprice competition every bit as quantitative as, say, the theory of production. Empirical research, so urgently needed in this field, may be expected to benefit greatly from such quantification.

PROFESSOR HICKS' *REVISION OF DEMAND THEORY*

A Review Article

By FRITZ MACHLUP*

The "demand theory" which Hicks is revising in his new book[1] is that of the first three chapters of his *Value and Capital*,[2] published in 1939. The original version was 42 pages long, the revision covers 194 pages. The new version goes deeper into the "foundations" and is more than patient in its "elaborations."

Among the chief reasons for undertaking the revision are the ascendancy of Samuelson's "revealed preference" approach (about which Hicks is sceptical), certain developments in the mathematical set theory of "strong" and "weak ordering" (of which Hicks gives a presentation which avoids mathematics), the discovery of a more closely reasoned derivation of the law of demand from a few simple propositions of logic, and the realization of some mistakes in his earlier treatment of consumer's surplus and complementarity.

The book falls into three parts: I. "Foundations"; II. "The Demand for a Single Commodity"; III. "The General Theory of Demand." There is no treatment of the "welfare side" of demand theory, nor of its empirical-statistical side, the book being confined to the deductive aspects of what Hicks calls "Plain Economics." He promises to present us with a statement of welfare economics at some later time. But empirical demand analysis, being "concerned with the statistical application of the theory rather than with the theory itself," is regarded by Hicks as outside his field (pp. vi–vii). Yet, "econometric application" is to him an important test, for "a theory which can be used by econometrists is to that extent a better theory than one which cannot" (p. 3).

A brief chapter is devoted to the rejection of (even hypothetically) measurable utility. Hicks holds that in the more elementary parts of the theory the assumption of cardinal utility neither helps nor hinders, but "in the more difficult branches cardinal utility becomes a nuisance" (p. 9). If one rejects, as one probably is forced to by rather simple reflection, the hypothesis of independent utilities, and if one grants the usefulness and possibility of dividing the effects of price changes into those of substitution and of changes in income, one has in effect eliminated cardinalism from the argument (pp. 11–15). Perhaps Hicks wanted to go further, for he elimi-

* The author is professor of political economy at the Johns Hopkins University.

[1] J. R. Hicks, *A Revision of Demand Theory* (Oxford: Clarendon Press. 1956. Pp. vii, 196. \$3.75.)

[2] J. R. Hicks, *Value and Capital* (Oxford, 1939).

nated even the word "utility" from most of the rest of the book. But is this more than a terminological gesture? The pages are full of "levels of indifference," which after all are not really different from levels of satisfaction or utility; several times the term "real income" is used as an equivalent (*e.g.*, p. 80); and finally there is much discussion of "the consumer's valuation" of units of goods, "average valuation" as well as "marginal valuation," of the practical unimportance of "cases of increasing marginal valuation," of the position of equilibrium where the consumer's marginal valuation of a good is equal to its price (pp. 89–90), of the theorem of the "Additivity of Marginal Valuations" and the "generalized law of Diminishing Marginal Valuation" (p. 153). I cite this list without any critical intent; on the contrary, I approve the introduction of new terms where it is desired to avoid some of the connotations associated with old terms. But the old-fashioned utility theorists, cardinal, semicardinal, as well as ordinal, may note with a sense of satisfaction that the "newfangled" techniques are not so very far removed from their good old ways.

The methodological position underlying Hicks' approach is eminently sound. He is free from positivist-behavioristic restrictions on the study of consumers' behavior, and he also avoids contentions about the supposedly empirical assumptions regarding rational action. Instead, he starts from a fundamental postulate, the "preference hypothesis." Faced with factual data about quantities of commodities purchased and with the task of explaining changes in these quantities, the economist has at least three possibilities: explanations in terms of nonprice data, explanations in terms of effects of current price changes, and explanations in terms of lagged effects of price changes. No matter which of the explanations seems most pertinent, one "needs a technique for separating out the current-price effects from the others," and for this purpose one needs a theory "which will tell us something about the ways in which consumers would be likely to react if variations in current prices and incomes were the only causes of changes in consumption." Thus we must proceed "by postulating an *ideal consumer*, who by definition is only affected by current market conditions. . . . The assumption of behaviour according to a scale of preferences comes in here as the simplest hypothesis . . . " (p. 17). No direct test of the preference hypothesis is practically possible (pp. 17 and 58). It is a postulate accepted because of its fertility in deduced "consequences that can be empirically applied" in the sense that they are successful in aiding "the arrangement of empirical data in meaningful ways" (pp. 17–18).

I. *The Logic of Weak Ordering and the Elementary Law of Demand*

Since the "demand theory, which is based upon the preference hypothesis, turns out to be nothing else but an economic application of the logical theory of ordering" (p. 19), the reader will first have to take the lesson Hicks offers on the "logic of order." He must learn the difference between *strong* ordering, where each item has a place of its own in the order, and *weak* ordering, where some items may be clustered in a group within which none can legitimately be put ahead of the others. (The indifference curve, he is

told, implies weak ordering inasmuch as all the points on that curve are *equally* desirable, whereas the "revealed preference" approach implies to Hicks that the positions between which choice is actually made can be strongly ordered.) Hicks teaches this lesson in logic in a relatively painless way, using chiefly examples involving the consistency and transitivity of propositions about the spatial positions of certain things to the left or right of one another. Without graphical support, his examples of "items left of P" and "items right of P" (pp. 26–35) may trouble readers who are alert to the possibility that Q may be left or right of P depending on the position of the observer or on the direction in which P or Q is facing. Forgetting this relativity of right and left, readers may learn, as Hicks wants them to, the distinctions between, and applications of, "two-term consistency conditions" and "transitivity conditions." And the most flexible, studious and docile of the readers may actually keep these conditions in mind ready to be produced to demonstrate certain theorems of demand theory. Older teachers of theory, including the present reviewer, will probably forget enough of these lessons to force them to stick with their accustomed didactic techniques.

In the explanation of the consumer's choice between two goods which are available only in discrete units, the theory of strong ordering seems superior. But where the choice is between any good which may be imperfectly divisible and money which is finely divisible, the possibility of equally desired combinations must be accepted and "strong ordering has to be given up" (p. 41). Weak ordering implies that rejected positions need not be inferior to a position actually chosen, but may have been indifferent; hence, actual choice fails to reveal definite preference. But, adopting the weak-ordering approach, committing ourselves to some degree of continuity (justified by the divisibility of money or general buying power), we must make two additional basic assumptions "to get any farther": that the consumer will always prefer a larger amount of money to a smaller amount and that his preference order is transitive. Hicks has no objections to these assumptions, and I have none either.

From the logic of weak ordering and the two additional assumptions just stated all major propositions of the theory of consumer's demand can be deduced. Hicks proceeds to do this first for the demand for a single commodity, that is, for the behavior of a consumer "confronted with a market in which the price of no more than one good is liable to change" (p. 47). The primary task is to derive the law of demand, that is, "the principle that the demand curve for a commodity is downward sloping" (p. 59). The technique chosen is that "of dividing the effects of a price-change into two parts": income effect and substitution effect. The latter "can be deduced from consistency theory." The income effect, according to Hicks, rests on observation; but he might just as well have said that it rests on the definitions of "normal" and "inferior" goods. (Observation comes in only to support the proposition that the income-elasticities of demand are nonzero for most goods, and positive if the goods are broadly defined.) The substitution effect, as Hicks demonstrates, tends to increase the consumption of a

good at a reduced price. The income effect will do the same, except for inferior goods. Hence, an exception to the law of demand—the Giffen case—can occur only when the good is inferior ("with a negative income-elasticity of significant size"), the substitution effect is small, and the proportion of income spent upon the inferior good is large (pp. 66–67).

II. *A Family of Hypothetical Income Variations*

The division of the effects of a price-change into substitution and income effects is arbitrary to the extent that the income effect is the hypothetical effect of a hypothetical change in income by an amount deemed commensurate to the price change. For separating out the two effects Hicks presents two alternative methods, neither of which corresponds to the one he presented in his earlier book. Since, to follow him, we have to manipulate three different income effects and two related concepts of consumer's surplus, a catalogue of the alternative concepts of relevant income variations and a graph showing the relevant indifference curves and budget lines will be useful. (Figure 1 uses indifference curves, which Hicks avoids in his book. There are no indifference curves in any of his 22 graphs, though there are points that are defined as representing "indifferent positions.") Since the relative magnitudes of the various hypothetical variations of income depend on whether the good whose price is reduced or increased is a normal or an inferior one, we must state what we assume: we assume the good to be normal.

Alternative Concepts of Income Variations Measuring Some Relevant Effects of Price Changes upon the Consumer

Pertaining to Price Reductions	*Pertaining to Price Increases*
The *cost difference L* [for Laspeyre] (shown as *FG* in Figure 1) equals the amount of a lump-sum *tax* which the consumer, following a reduction in the price of *X*, would have to pay in order to be able to purchase just the same quantities, and no more, of *X* and of all other goods that he purchased before the price reduction.	The *cost difference P* [for Paasche] (shown as *FJ* in Figure 1) equals the amount of a lump-sum *subsidy* which the consumer, following an increase in the price of *X*, would have to receive in order to be able to purchase just the same quantities, and no less, of *X* and of all other goods that he purchased before the price increase.
The *compensating income variation* (shown as *FH* in Figure 1) equals the amount of a lump-sum *tax* which the consumer, after a reduction in the price of *X* has caused him to purchase a larger quantity of *X* at the lower price, would have to pay in order to be pushed back to the same indifference level that he had attained when he purchased a smaller quantity of *X* at the higher price—provided that he is permitted after paying the tax to adjust again (reduce by *B'C'*) the quantity of *X* purchased.	The *compensating income variation* (shown as *FI* in Figure 1) equals the amount of a lump-sum *subsidy* which the consumer, after an increase in the price of *X* has caused him to purchase a smaller quantity of *X* at the higher price, would have to receive in order to be lifted back to the same indifference level that he had attained when he purchased a larger quantity of *X* at the lower price—provided that he is permitted after receiving the subsidy to adjust again (increase by *A'E'*) the quantity of *X* purchased.

The *compensating consumer's surplus* (shown as FS in Figure 1) equals the amount of a lump-sum *tax* which the consumer, after a reduction in the price of X has caused him to purchase a larger quantity of X at the lower price, would have to pay in order to be pushed back to the same indifference level that he had attained when he purchased a smaller quantity of X at the higher price—provided that he is *not* permitted after paying the tax to adjust again (reduce) the quantity (OB') of X purchased.

The *compensating consumer's surplus* (shown as FT in Figure 1) equals the amount of a lump-sum *subsidy* which the consumer, after an increase in the price of X has caused him to purchase a smaller quantity of X at the higher price, would have to receive in order to be lifted back to the same indifference level that he had attained when he purchased a larger quantity of X at the lower price—provided that he is *not* permitted after receiving the subsidy to adjust again (increase) the quantity (OA') of X purchased

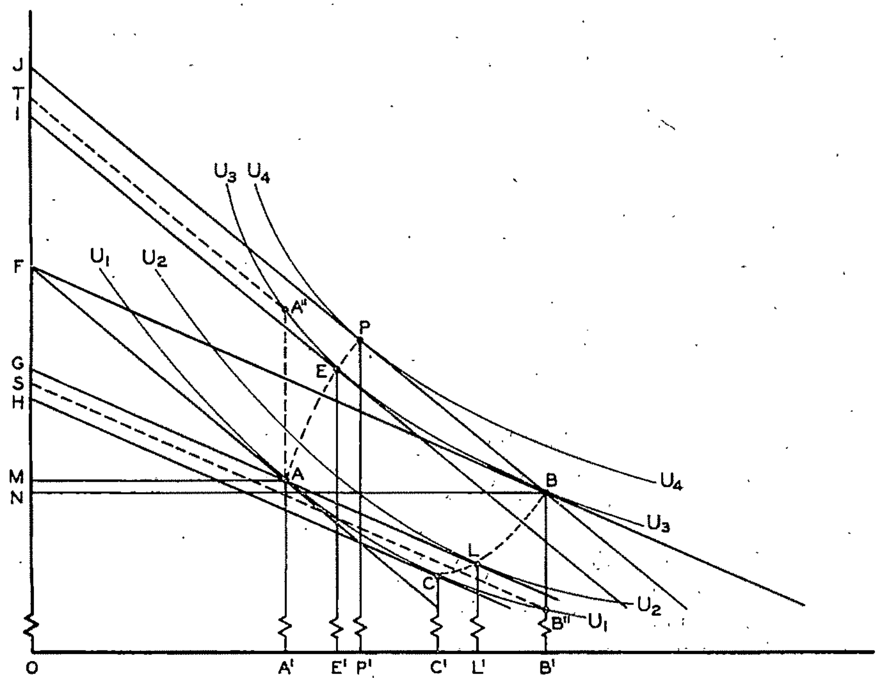

FIGURE 1

The *equivalent income variation* (shown as FI in Figure 1) equals the amount of a lump-sum *subsidy* which the consumer, after purchasing a certain quantity of X at a given price, would have to receive in order to be lifted up to the same indifference level that he would attain if a reduction in the price of X caused him to purchase a larger quantity of X at the lower price—provided that he is permitted after receiving the subsidy to adjust (increase by $A'E'$) the quantity of X purchased.

The *equivalent income variation* (shown as FH in Figure 1) equals the amount of a lump-sum *tax* which the consumer, after purchasing a certain quantity of X at a given price, would have to pay in order to be pushed down to the same indifference level that he would attain if an increase in the price of X caused him to purchase a smaller quantity of X at the higher price—provided that he is permitted after paying the tax to adjust (reduce by $B'C'$) the quantity of X purchased.

The *equivalent consumer's surplus* (shown as FT in Figure 1) equals the amount of a lump-sum *subsidy* which the consumer, after purchasing a certain quantity of X at a given price, would have to receive in order to be lifted up to the same indifference level that he would attain if a reduction in the price of X caused him to purchase a larger quantity of X at the lower price—provided that he is *not* permitted after receiving the subsidy to adjust (increase) the quantity (OA') of X purchased.

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We have here five different income variations relevant to price reductions, and five relevant to price increases; since four of the latter have counterparts among the former of equal size (though of opposite signs) we have six different magnitudes. Let us defer the discussion of the four consumer's surpluses—of two sizes—and deal first with the three pairs of income variations called "cost differences," "compensating variations," and "equivalent variations." (All these terms are of Hicksian coinage.)

A. *The Three Pairs of Income Effects and Substitution Effects*

First of all, why, for the case of a price reduction, are two of the income variations visualized as taxes and one as a subsidy? The point is that the imaginary subsidy is to be given *instead* of the price reduction—hence, an "*equivalent* variation of income." The two imaginary taxes, on the other hand, are to be imposed, *after* the price reduction becomes effective, in order to undo some of the effects of that reduction, the one by taking away enought to offset the gain in total utility obtained through the price reduction—hence, a "*compensating* variation of income"—the other to take away enough to offset the money saving made in buying the old quantity at the reduced price—hence a "*cost difference à la Laspeyre*."[3] The relative sizes of the three income variations should now be clear (for the case of a price reduction of a normal good). The cost difference is the smallest; the compensating variation must be bigger in order to offset the gain the consumer could make through adjusting his purchases after paying the cost-difference tax; the equivalent variation must be bigger still because no price reduction and no substitution have yet taken place.

The income effect of a price reduction of a "normal" good is, of course, positive. How then can imaginary taxes, or income reductions, describe it? The trick is that the imaginary taxes are to be thought of as immediately followed by imaginary tax refunds, and these refunds are regarded as the income effect. First we tax the consumer (thus eliminating the income

[3] Since the latter tax would seize only what the consumer could save if he purchased the old collection of goods, and would thus leave it open to him still to improve his position (by substituting more of the cheapened good for other goods), it was once referred to as an "*under-compensating* variation of income." See P. A. Samuelson, "Consumption Theorems in Terms of Overcompensation rather than Indifference Comparisons," *Economica*, Feb. 1953, N.S. XX, 1–9.—Samuelson discussed a price increase and, hence, an "overcompensating" variation of income, since the Paasche cost difference would be larger than the compensating variation.

effect) and see how he would adjust his purchases to the price reduction—the substitution effect in isolation—and then we refund the tax to see how he would spend this increase in income. The order is reversed when the equivalent variation is used: we first eliminate the substitution effect and, by giving the consumer a subsidy and watching him adjust his consumption to it, we isolate the income effect; then we take the difference between this subsidized consumption level and the one induced by the uncompensated price reduction as the substitution effect.[4]

The three methods trace three different paths from position A to position B (see Figure 1). The equivalent variation sends us *via* E, the compensating variation *via* C, and the cost difference *via* L. Students of Hicks' *Value and Capital* may remember that they were told to take the E-route.[5] In my review article of 1940 I proposed the L-route.[6] Strangely enough, Hicks forgot both my directions and his own. He now (p. 61) attributes the L-route to a 1953 article by Samuelson,[7] and states that he himself had adopted the C-route.[8] He recommends the C and L routes as alternatives, though he finds the C-route less convenient in relation to the income effect and more convenient in relation to the substitution effect (p. 69). The E-route, once the only one described in this context, he now finds least convenient (p. 80).

The effect of the price reduction upon the consumption of X is invariably $A'B'$, but with the different imaginary intermediate points the substitution effects are $A'C'$, $A'L'$, or $E'B'$, respectively, and the respective income effects are $C'B'$, $L'B'$, or $A'E'$. If we reverse the direction of change and describe the effects of a price increase, we see that the equivalent variation will be found through C as the intermediary point, and the compensating variation through E, while the cost difference, now *à la Paasche*, will have a new point, P, as a half-way place. The relative sizes of the income variations are rather different from what they were before: the equivalent variation is now the smallest, the compensating variation is bigger, and the cost difference is the biggest (this time deserving the Samuelson designation as "overcompensating" variation). The substitution effects upon the consumption of X will now be $B'E'$, $B'P'$, or $C'A'$, the income effects $E'A'$, $P'A'$, or $B'C'$.

[4] This asymmetry in procedure is apt to cause confusion regarding the signs of the income effects. It is already a little strange that we, following Hicks, speak of a positive income effect when a negative change of price causes a positive change in the consumer's real income. It may be confusion worse confounded if we, departing from Hicks but following common sense, mark imaginary taxes with negative signs, and imaginary subsidies with positive signs, and yet use both in the explanation of a "positive" income effect. Consistency is hard to restore in this matter and I can do no better than warn the reader about the deceptive signs.

[5] *Op. cit.*, p. 31.

[6] Fritz Machlup, "Professor Hicks' Statics," *Quart. Jour. Econ.*, Feb. 1940, LIV, 280–82.

[7] See footnote 3, above. Samuelson informs me that the method was already used in Slutsky's article, "Sulla teoria del bilancio del consumatore," *Giorn. d. Econ.*, July 1915, LI, 1–26, was then repeatedly described in the index-number literature, and was alluded to by Hicks himself in the Mathematical Appendix to *Value and Capital*, p. 309. An English translation of Slutsky's article is available in *Readings in Price Theory*, G. J. Stigler and K. E. Boulding, ed. (Homewood, 1952).

[8] Hicks probably thinks of his exposition of consumer's surplus, for which he had used the C-method.

B. *The Four Consumer's Surpluses*

In *Value and Capital* the compensating variation in income figured as the consumer's surplus. "But this was a mistake," which Hicks corrected in his article on "The Four Consumer s Surpluses"[9] and corrects now again (p. 96). The "mistake" is easy to make and hard to clear up. There are, as Hicks now takes pains to explain, two angles from which demand theory can be viewed: one may ask either what quantities would be consumed at certain prices, or what maximum prices would be paid for certain quantities. Hicks accordingly distinguishes "price-into-quantity analysis" and "quantity-into-price analysis" (p. 83). The former is best understood by visualizing the consumer as a pure competitor in the market, free to purchase at a given price any quantity he chooses. For the other approach we have to imagine the consumer in a market where goods are rationed out to him, where he may have to pay discriminatory prices for every unit or at least for additional units of the commodity, or where he may be compelled to take certain quantities. The question what is the maximum amount of money the consumer might be willing to pay for a certain quantity can be answered only if we do not permit him to take less than that quantity at that price, as he would if he had his choice. Since consumer's surplus is the excess of this maximum over the actual price paid, its definitions have to provide for some such restraint concerning quantity purchased.

These restraining provisions were made in the descriptions of the four concepts of consumer's surplus included in our catalogue of alternative concepts. And these restraints account also for the size relations between the various income measures. The definition of the compensating consumer's surplus fixes the quantity that was chosen at the changed price and does not permit it to be adjusted when a compensating tax or subsidy reduces or raises the consumer back to the indifference level he had attained before the price change. The definition of the equivalent consumer's surplus freezes the quantity that was chosen before the price change and does not permit it to be adjusted when an equivalent subsidy or tax lifts or depresses the consumer to the indifference level he would attain as a result of the price change. Hence, in the case of a price reduction, the compensating consumer's surplus must be smaller than the compensating variation because a tax in the amount of the latter, with no quantity readjustment permitted, would reduce the consumer below the initial indifference level. (In Figure 1, if the consumer were assessed a tax of FH and were compelled to take the quantity OB', he would be worse off than initially. If he is to stay on the initial indifference level, U_1, he cannot pay more than $BB''=FS$ as a compensating-surplus tax.) Similarly, the equivalent consumer's surplus must be larger than the equivalent variation because a subsidy in the amount of the latter, with no quantity adjustment permitted, would fail to lift the consumer to the indifference level that the price reduction would afford him.

[9] J. R. Hicks, "The Four Consumer's Surpluses," *Rev. Econ. Stud.*, 1943–44, XI, 31–41. Hicks gives due credit for "discovering" the mistake to A. M. Henderson, "Consumer's Surplus and the Compensating Variation in Income," *Rev. Econ. Stud.*, 1940–41, VIII, 117–21.

(In Figure 1, if the consumer were given a subsidy of only FI and were held to a quantity of OA', he would not reach the indifference level U_3; it would take a subsidy in the amount of $AA'' = FT$ to get him there.)

C. *Arithmetic and Graphical Illustrations*

The quantitative relationships expressed here in written language and shown geometrically in an indifference graph may be profitably reviewed by an arithmetic illustration—although to admit the usefulness of such simple devices takes courage in these days of high-powered mathematical techniques. Let us then assume a simple demand schedule with just two prices of a normal good; let us calculate the cost-differences L and P, and let us assign arbitrary but plausible values to the other income variations relevant to movements between these two points of the demand schedule. The demand schedule is reversible and, depending on the direction of the change, each price-quantity pair will in turn constitute the "initial position."

Demand Schedule for Good X

Price	*Quantity*	*Amount Paid*
10¢	1000	$100.00
9¢	1150	103.50

Relevant Variations	As Price Is Reduced		As Price Is Increased	
	Dollar Amount	Fig. 1	Dollar Amount	Fig. 1
Change in expenditure for X	+3.50	MN	−3.50	MN
Cost difference of initial quantity	−10.00	FG	+11.50	FJ
Compensating income variation	−10.50	FH	+11.00	FI
Equivalent income variation	+11.00	FI	−10.50	FH
Compensating consumer's surplus	−10.25	FS	+11.25	FT
Equivalent consumer's surplus	+11.25	FT	−10.25	FS

Note: The inconsistencies in the signs are discussed on p. 125 above. The graph (Figure 1). is not drawn to correspond to the dollar amounts used in this illustration.

Yet another device will aid in exhibiting the income effects and the substitution effects "operating" upon the quantity of X consumed as a result of the reduction or increase in price. We may draw for the two prices a family of "uncompensated" demand curves, each with income as a parameter. Disregarding the four consumer's surpluses (because they are less helpful in "price-into-quantity analysis") we shall need four demand curves besides the one for the initial income Y: two for incomes after taxes, $(Y - 10.00)$ and $(Y - 10.50)$ and two for incomes after subsidies, $(Y + 11.00)$ and $(Y + 11.50)$, as shown in Figure 2. Using the above demand schedule for income Y and connecting the initial positions A (for the price reduction) and B (for the price increase) with the relevant points on the other demand curves, we can identify AC and AL as the two "compensated demand curves" for the price reduction, one after the tax to offset the utility gain,

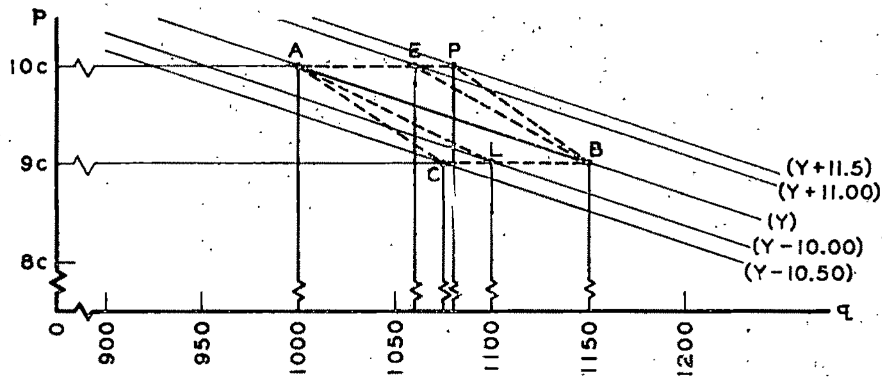

FIGURE 2

the other after the tax to offset the cost difference; and *BE* and *BP* as the two "compensated demand curves" for the price increase, one after the subsidy to offset the utility loss, the other after the subsidy to offset the cost difference.

We can again trace the effects of the price changes along alternative routes: *ACB*, *ALB*, and *AEB* for the price reduction, *BEA*, *BPA* and *BCA* for the price increase. The alternative substitution and income effects upon the consumption of *X* can be read off the graph as follows:

Cause	Route	Substitution Effect	Income Effect	Total
Price reduction from 10¢ to 9¢	*ACB*	*AC*= 75 units	*CB*= 75 units	*AB*= 150 units
	ALB	*AL*= 100 units	*LB*= 50 units	*AB*= 150 units
	AEB	*EB*= 90 units	*AE*= 60 units	*AB*= 150 units
Price increase from 9¢ to 10¢	*BEA*	*BE*= −90 units	*EA*= −60 units	*BA*= −150 units
	BPA	*BP*= −70 units	*PA*= −80 units	*BA*= −150 units
	BCA	*CA*= −75 units	*BC*= −75 units	*BA*= −150 units

D. *Marginal Valuation*

For the "quantity-into-price" approach we must become better acquainted with "marginal valuation" and the "compensated marginal valuation curve." Hicks had introduced this ingenious device in his 1944 article under the name of "marginal indifference curve." (At that time he used the term "marginal valuation curve" for a curve which is now stowed away in the attic with other old gadgets.) The new marginal valuation curve is presented together with a corresponding average valuation curve. (These curves look exactly like the well-known marginal and average product curves, with which they in fact have much in common.) The compensated marginal valuation curve is designed to show "the amounts of money which the consumer is willing to pay for successive units of the commodity *X*" pro-

vided that he "pays the full marginal valuation of each unit before making his valuation of the next" (p. 86).

What is the difference between the compensated marginal valuation curve and the compensated demand curve? The latter shows the quantities consumed at each price "under the assumption that income is continuously adjusted so as to maintain indifference of the successive positions" (p. 76). The difference is, essentially, that a marginal valuation curve may go up before it goes down, whereas the compensated demand curve can only go down. Any rising part of the marginal valuation curve will not, however, be of practical interest if the consumer can purchase as much as he wants. His demand will be "zero until price falls to his maximum average valuation" (p. 88), and at lower prices the quantities taken will be such as to secure equality between marginal valuation and price.[10]

III. *The General Theory of Demand*

After graduating from the study of "elementary" theory of demand—"in which the price of no more than one good is liable to change" (p. 47)—we advance to the study of the "general" theory—in which "more than one price-ratio is allowed to vary" (p. 107). At the outset Hicks makes us exercise with a "Second Consistency Test," only to conclude that this approach "is not promising" (p. 112). Instead, he puts us to work with so-called "indifference tests." (His penchant for giving a new name to every step in the argument leads to a bewildering proliferation of terms, which few will care to remember even if they should be able to do so.) The "first indifference test" says no more than "that as between two indifferent positions, the compensating variation C is less or equal to the cost-difference P," the Paasche cost-difference; "the second indifference test is expressed by saying that when we are comparing two indifferent positions, C must be greater or equal to L," the Laspeyre cost-difference (p. 116). These are merely new names for old ideas (which I had expressed in my 1940 article). But from these "tests" Hicks is able to deduce that the substitution effect of a price reduction must be positive (or zero, at worst). For, without income effects $P-L=S$, that is, the positive substitution effect is implied in the excess of the Paasche cost-difference over the Laspeyre cost-difference.

[10] I must briefly report on Hicks' reflections concerning the Giffen case and his discovery of an "anti-Giffen case" (p. 92). Just as the Giffen possibility rests on exceptionally strong income effects upon the *consumption* of exceptionally "strongly inferior" goods, the anti-Giffen possibility rests on exceptionally strong income effects upon the marginal *valuation* of "strongly normal" goods, possibly causing the marginal valuation curve to slope upward for another stretch. But the possibility is only of theoretical interest and of little, if any practical importance. The probability of sufficiently strong income effects is negligible, especially since what counts in practice are not single consumers, but large groups of consumers heterogeneous in tastes as well as incomes (pp. 67–68). But in addition Hicks shows that stretches of Giffen slopes would not provide equilibrium positions and would be quickly passed in swift movements of prices (or of quantities, in the anti-Giffen case). Thus, even if these unlikely situations should exist, they "would not show up," for "All that would be seen . . . would be a fall in price," and "We should not be able to tell that the law of demand was failing to operate, for the effects of that condition would be indistinguishable from the effects of a demand that was extremely inelastic" (p. 94); or especially elastic in the anti-Giffen case.

Where two or more prices change at the same time, the "Total Substitution Effect" is the sum "of the differences in quantity consumed of each good, each being valued at the corresponding difference in price" (p. 117). If price reductions are "reckoned as positive," and price increases as negative, "the total substitution effect of any price-change, however complex" must always be positive (or zero). This is christened "the First Substitution Theorem"; it contains "the downward slope of the compensated demand curve as a special case" (p. 117). To put it differently, when a compensating variation in income has made two constellations of prices and quantities equally desirable, the price reduction of X times the quantity increase of X, plus the price reduction of Y times the quantity increase of Y, plus etc., can never be negative.

From the "transitivity of indifference" follows "the additivity of compensating variations," as Hicks demonstrates in easy steps. Soon thereafter he makes the nonmathematical readers feel happy by assuring them that they have just been introduced to a statement, in economic terms, of "the fundamental theorem of Riemann integration" (p. 123). Their confidence thus being bolstered up, the readers, determined to hang on for another ride, will be glad to accept the assumption that compensated demand curves can be treated as straight lines, since "any continuous curve, over a sufficiently short stretch, is indistinguishable from a straight line (p. 125). This will take them to another vista, named "the Reciprocity Theorem."

This theorem, good for comparing three or more price-quantity constellations (with small price differences only) which are made indifferent through compensating income variations, tells us that "the sum of the quantity-changes from (0) to (1) each being valued by the price-change of the same commodity from (0) to (2), equals the sum of the quantity-changes from (0) to (2) each being valued at the corresponding price-change from (0) to (1)" (p. 126). A simple but useful implication of this theorem is that "the cross-effects of price-changes . . . are equal" (p. 127) and hence, "the relation of substitution (and complementarity) is reciprocal" (p. 128). Incidentally, discussions of complementarity are beyond the scope of elementary theory of demand because "in the two-goods case, the relation between the two goods must be that of substitution. . . . Complementarity can only occur when there are other goods outside the group of complements at whose expense the substitution in favour of the group of complements can take place" (p. 129).

Since the designation of the "first" substitution theorem has indicated that there must be more in store, my conscience forbids me to skip the "second substitution theorem." But I shall mention merely that it is chiefly concerned with a "limit on the size of the cross-effect," and provides formal support to the intuitively obvious fact that "X and Y cannot be highly substitutable for one another unless each has a demand which is highly elastic with respect to its own price." As another boon to the nonmathematical reader, I may quote an aside of the author to the effect that he finds in connection with this theorem an "example of the way in which a blind adher-

ence to standard mathematical methods sometimes produces nonsense results" (p. 134).

While we are on the subject of the cross-effects, it may be worth stressing that all references up to this point have been only to the "cross-substitution effects," isolated by means of compensating income variations. If income is not tampered with, "the equality between the cross-substitution effects may well be masked by inequality between the cross-income effects on income-elasticities" (p. 147). This was clearly set forth by Hicks in his *Value and Capital.*

A. *Exceptions to the Law of Demand*

Some other consequences of the income effect, however, are either demonstrated in novel ways or newly discovered. The chief question is whether the "Total Income Effect," which is "a combination of the separate income-effects on the separate commodities," may modify the "generalized law of demand." Hicks sees "three possible sorts of exceptions" to the law: "those due to inferior goods, to commodity asymmetry, and to asymmetrical effects of redistribution" (p. 146). The first of these exceptions is of course the "generalization of the Giffen case," in which all or most of the "price-changing goods" are inferior. Since "the share in consumer's expenditure going upon all inferior goods taken together may be much larger than that going upon any particular inferior good," a large negative income effect has a somewhat better chance of being realized where many prices may change than where only one price changes (p. 139). But it would be a very odd thing indeed if price changes in the same direction happened to be concentrated in the group of inferior goods.

The second exception is "perhaps more interesting." It is conceivable that the income-elasticities of demand for the goods that rise in price are very different from those that fall in price. Imagine sharp price reductions for a group of "necessaries (with income-elasticity zero), and a rise in the prices of a group of luxuries (with high income-elasticity)," with the gains from the price reductions exceeding the losses from the price increases. The freed income would go after the luxuries; if there is no third group of goods, and if the price ratios within the two groups have not changed, the quantities of luxuries consumed may rise despite their higher prices (p. 142). We need not expect this often, if ever, to happen in reality, but it is fun to think about it.[11]

The third exception relates not to the demand of an individual consumer but only to the market demand. In general the "probability of exceptional cases is diminished when we take a large group of heterogeneous consumers together" (p. 144). But there is the possibility of a changed distribution of a constant total income where the gainers and the losers have very different

[11] If the luxuries did not rise in price, the demand for them would surely increase by more. Thus the price increases operate in the expected, not exceptional, manner: they reduce the quantities demanded below those that would result from the price fall in necessaries. (This comment is the result of a discussion with William Fellner.)

income-elasticities of demand. Thus there is the chance of a "redistribution income-effect," and Hicks can state: "If the price of X falls (other prices constant), while the total income of consumers remains constant, it is always possible that the consumption of X may fall, if income is redistributed from X-likers to X-dislikers" (p. 145). I cannot persuade myself to see this case as an "exception" to the law of demand; the peculiar change in the distribution of income is in no way connected with the change in prices, but is just one of those things that by some queer coincidence may happen and prevent a result of another change that has occurred from being realized. The first two exceptions are due to given conditions and may occur while other things remain unchanged. The "third exception" abrogates the *celeris paribus* clause and invokes a fortuitous change of other things.

B. *Substitutes and Complements*

The inversion of "price-into-quantity theory" to "quantity-into-price" theory, which was profitably carried out in "elementary theory," affords no less valuable insights in the general theory. What we have just learned to call the "first substitution theorem" becomes now the "generalized law of Diminishing Marginal Valuation" (p. 153). The main additions to the set of previously formulated propositions on marginal valuation concern the relationships of substitutability and complementarity, and it is on these issues that Hicks proposes some of the most significant revisions of his earlier theory. In part they represent developments of suggestions made since 1939 by Lange, Mosak, and Ichimura.

The most basic revision lies in the recognition of two alternative definitions of substitutability (complementarity), one looking toward the effect of price changes upon quantity with other prices unchanged, the other toward the effect of quantity changes upon valuation with other quantities unchanged. In order to distinguish between the two definitions, Hicks speaks of goods as "p-substitutes," "q-substitutes," "p-complements," and "q-complements." Thus, "X and Y are p-substitutes when . . . a fall in the price of X [diminishes] the demand for Y, when all *prices* save that of X are fixed, and income is adjusted so as to maintain indifference." And "X and Y are q-substitutes when a rise in the quantity of X diminishes the marginal valuation of Y (or the price at which a fixed quantity of Y would be purchased) when the *quantities* of all other commodities than X are fixed, saving the quantity of money, which is adjusted so as to maintain indifference" (p. 156).

Only in the simplest case will p-substitutability and q-substitutability be exactly equivalent, namely, in the case in which the prices of all other goods than X and Y are fixed. If other prices, say the price of Z, can vary as a result of a price change of X, there may be cross-effects upon the demand for Y which may offset the initial effect of the price change of X; indeed, the cross effect (Z upon Y) may wipe out the initial effect (X upon Y) so that "X and Y would be q-substitutes, even though they are p-complements" (p. 157). Because of such reactions through third goods the distinction between the two meanings of the relationship is necessary, although the

"reciprocity theorem holds for each of the two meanings" (p. 158).

The discussion of related goods in terms of the effects only of price changes had left a bad gap—noted in my 1940 article, identified by Lange,[12] and provisionally filled by Ichimura[13]—in that the effects of other changes, including changes in the system of wants, could not be analyzed with the tools at hand. The "sympathetic" changes in demand of which Lange had spoken in cases of what Hicks now calls "intrinsic complementarity" (p. 162) can be explained by means of the new set of concepts. It turns out that the marginal valuations of complementary goods may move in different directions while their quantities move together; and that the marginal valuations of close substitutes will move together while their quantities do not. This fits in perfectly with the old insight that "perfect substitutes tend to have constant price-ratios, perfect complements constant quantity-ratios" (p. 165).

Some of the problems of consumer's choice have been unnecessarily clouded by the practice of regarding substitutability (or complementarity) between consumer's goods always as a matter of wants or tastes even when it is a matter of technology. Hicks reminds us of Menger's distinction between "objectives" and "means of reaching" them (p. 166). Consumers may make technical decisions about alternative means of reaching their given objectives. Hence, technical substitutability (or complementarity) is relevant not only in production but also in consumption; not only in the theory of the firm but also in the theory of the household. The brief remarks which Hicks makes on this point may open up good opportunities for enterprising economists, theoretical or empirical, in search of subjects in which to invest their analytical talents.

IV. *The Importance of All That*

Many of the relationships which Hicks "discovers" or elaborates in this book are fascinating to a seasoned teacher of abstract economic theory. Does this make the book and its discoveries "important"? When I tried out some of its arguments on a more worldly economist, his reaction was "So what?". By pragmatic tests, I must admit, we shall hardly be able to claim any importance for Hicks' discoveries. They will in no way affect any recommendations of economic policy, any predictions of future events, any explanations of the past. None of our actions will be different from what it would be if this book had never been written—except perhaps the teaching of some fine points in university courses on pure economic theory (and even here most students may fail to notice the difference).

But is it fair to apply such crudely pragmatic criteria? Judged by such tests most works of art would lack importance, and so would most works in philosophy and logic. Indeed, most improvements of theoretical systems in the empirical sciences would be "unimportant," for as a rule they do not

[12] Oskar Lange, "Complementarity and Inter-relations of Shifts in Demand," *Rev. Econ. Stud.*, Oct. 1940, VIII, 58–63.

[13] S. Ichimura, "A Critical Note on the Definition of Related Goods," *Rev. Econ. Stud.*, 1950–51, XVIII, 179–83.

affect the conclusions but merely reduce the number of assumptions from which the results are deduced. The conventions of scientific methodology are quite clear on recognizing the "importance" of reconstructions in which some of the old pillars of a theoretical framework are razed.

I can understand, however, that some discontent with the rule of Occam's Razor may arise if it shaves away some very familiar assumptions and forces us to engage in brain-racking logical exercises in order to deduce our familiar conclusions from fewer (or weaker) hypotheses. This is precisely what Hicks' Revision of Demand Theory does or claims to do. Some very well-known empirical propositions (such as the law of demand) are here deduced, without the use of some very familiar assumptions (such as given systems of utility or indifference), from a smaller number of hypotheses or from less restrictive ones; and this involves heavy demands on the syllogistic agility of the readers. I can hear them say: "Why should we work so hard to obtain our results from three assumptions if we can get them with so much less effort from four or five? After all, hypotheses come quite cheap; why skimp?"

I take it that we must not give in to such lowbrow laziness. Much as we may prefer to economize in mental effort, as gentlemen and scholars we are obliged to economize in hypotheses. "A body of propositions, such as those of pure mathematics or theoretical physics [or, let us add, theoretical economics], can be deduced from a certain apparatus of initial assumptions concerning initial undefined terms. Any reduction in the number of undefined terms and unproved premises is an improvement since it diminishes the range of possible error and provides a smaller assemblage of hostages for the truth of the whole system." This, in Bertrand Russell's words,[14] is the maxim we obey; and under this maxim one may give recognition to the importance of Hicks' work even if one should not be satisfied with the contributions it makes through the theorems which are discussed in the foregoing pages. Whether Hicks' approach is an improvement not only on his earlier presentation but also on the revealed preference approach will probably be debated. The latter uses still fewer assumptions, but Hicks' assumptions are weaker (less restrictive). On different grounds some may claim that revealed preference is superior because of the "empirical meaning" of the fundamental hypothesis. For me it is sufficient that such a hypothesis be "understandable" in the light of my inner experience casually checked against like experiences of others.[15] I find superfluous the polite bows to neopositivism which the revealed preference theorists make. Whether their theory yields conclusions which Hicks' theory cannot yield is another matter, but this is not examined here.

An important book is sometimes enjoyable to read. Unfortunately this cannot be said about this book. Not that higher mathematics or complicated graphs stop the reader's progress. The exposition is nonmathematical; if there are equations and mathematical symbols on many pages of Part III,

[14] Bertrand Russell, "Philosophical Analysis," *Hibbert Jour.*, July, 1956, LIV, 321.

[15] See Fritz Machlup, "The Problem of Verification in Economics," *South. Econ. Jour.*, July 1955, XXII, 1–21, esp. pp. 16–17.

they are merely abbreviations and are not subjected to algebraic manipulations.[16] Of course, the formally literary exposition is still mathematical in the sense in which all logical reasoning is mathematical. Since the entire book is a tightly knit logical argument, it is not possible for the reader to skim the book with much chance of success; if he attempts to skip a few pages or even paragraphs he is likely to get lost. Indeed, a reader who pauses too long between chapters may have to go back and re-read lest he miss his connections. All this may explain why the book is a difficult one; but it does not explain why it gives little reading pleasure. Does perhaps Hicks' style of writing account for that? It is interesting to speculate how a master of literary exposition—rare indeed among present-day economists—might mould Hicks' material into graceful, enjoyable prose. Hicks is a very serious man and he takes his work very seriously. But could he not, metaphorically speaking, indulge in a smile once in a while? On the rare occasions when he attempts a somewhat humorous touch, the result is not always felicitous. For example, when he announces "there is a dragon waiting at the door who must first be cleared out of the way. It is the old crux of the measurability of utility" (p. 7). To be sure, we have heard of all sorts of creatures being transformed into dragons; but a dragon who is an old crux is even more forbidding than Cardinal Utility.

[16] It is disturbing, though, that Hicks uses dots where in usual practice we would find parentheses; he writes consistently $(p_0-p_1\cdot q_1)$ instead of $(p_0-p_1)\ q_1$.

COMMUNICATIONS

Public Management of Private Employment Volume—A Proposal

Economics rivals philosophy in the ease with which the rash innovator can become entangled in subtle pitfalls. But the author of proposals that diverge sharply from currently accepted thought has one advantage if he is a nonprofessional, for if his schemes fall through, the danger to his personal way of life is less. I have been warned that simple answers to the problem of economic stability in a free society are not likely to be found. Quite possibly this is true. Yet it will be plain that my hopes are not small ones.

No analysis of how slumps come about will be found herein. The omission is deliberate. Rather we will seek methods of economic management having firmness enough to override ordinary causes of instability. But the firmness we seek must not notably impair flexibility or freedom in economic life.

Although the approach here is reminiscent of the Papen Plan tried in Germany in 1932 and '33, under which subsidies and concessions were granted to those employers who hired more help, the present scheme is more similar to a wage subsidy. Yet such a classification of the present proposal is inadequate, as will be seen.

I. *The Money-Pump Plan*

Let us imagine ourselves in a country where the plan is put into operation during prosperous times. The government announces that it will pay a lump sum to any employer who will contract with the government to spend at a certain minimum rate for employing people during, let us say, a year. For example, an employer of one man might agree to pay out for employment at a minimum rate of, say, $500 per quarter, which would come to $2,000 for the year. It will prove convenient to describe this employer as having acquired one "money-pump contract" or one "money pump." If he contracts to spend for employment at the rate of $1,000 per quarter, we may say that he has acquired two "money pumps." An employer of 100 men planning to pay them a total of $100,000 for steady employment during the year might acquire 200 money pumps. Thus a "money pump" or "money-pump contract" is a unit share of contracted employment responsibility—a unit-contract to spend, say, $500 per quarter for employment, but not for the benefit of specific employees. Most money pumps would be held in groups of more than one and would be separable in case of subcontracting or, to put it simply, in case of sale.

A lump-sum negative-price payment accompanies each money-pump contract when originally made or when transferred, whether paid by the government at original issue, or paid by an employer when selling his money

pumps. Except for this compensation, no new rights are granted to the holder. Stated bluntly, all that money pumps themselves do is to pump money out of the employers' pockets and into the pockets of employees. Thus their value in a free market is always negative. If the plans of our employer were curtailed unexpectedly during the year, he could subcontract some of his money-pump contracts to others, for a price; that is to say, he could sell his money pumps at the prevailing negative price, and the recipients would assume his employment responsibilities.

Since it doesn't matter who holds the money pumps so long as someone does, the government permits them to be traded at will. The market value of money pumps being negative, no certificates evidencing ownership are issued; they would be quite pointless and would be thrust down the nearest open manhole. Rather, entries in government files are the evidence of the existence of money pumps. Free private markets for transferring them spring up around regional government offices where such records are maintained.

Unlike most government contracts, the responsibility incurred would not be primarily that of the contractor to government, but rather of the contractor to a third party—the employee. Such a characteristic in a contract is somewhat unusual, but not unknown; for instance, I am told that it is not very rare for A to insure the life of B with Company C for the benefit of D. The employer might be regarded as insuring employees' jobs; the remarketing of contracts would be analogous to reinsurance.

The objective is to float a quantity of money-pump contracts sufficient to cover nearly the entire employed private labor force, thus maintaining a high level of employment and a guaranteed national annual wage. As the money-pump contracts are for definite terms, they are perpetually reissued as they expire. The expiration dates are arranged to be smoothly staggered so that the reissuing will be a continual operation.

The Negative Price. The negative price of money-pump contracts depends on the amount outstanding and on the state of business confidence. The negative price is preferably low, in order to ease the financial burden both on government in issuing them and on businessmen in subcontracting or selling them. As an educational plan to familiarize business with these new instruments, it would be possible to market short-term money-pump contracts adding up to only a fraction of actual employment. Since this operation would entail only finding *some* employers who would accept a fee for contracting to do what they aimed to do anyhow, the market would soon shake down to a token price. However, pushing up the outstanding volume of money-pump contracts to the point where they would offer a serious guarantee against mass unemployment would impose some risk on the contracting employers. Even though the risk were limited by holding down the maximum length of contract to a year from date of issue, the negative price would no doubt be appreciable. In case there were a fall in the public's propensity to spend, creating a real incentive to reduce employment below the contracted volume, the negative price would grow stiffer. This would of course mean that society (by paying more to get money pumps into cir-

culation) would be translating the avoidance of unemployment into a financial cost of government. If the scheme was fully successful, the forces tending to produce fluctuations in employment would instead only produce fluctuations in the price of money-pump contracts and in the corresponding stream of transfer payments.[1]

The demand for money-pump contracts—the desire to possess them—is always a minus quantity except at a negative price. In order to make this fact continually obvious, the horizontal axis in Figure 1 is placed at the top, even though this makes it somewhat inconvenient to speak of "rises" or "falls" in negative prices, or of "ceilings."

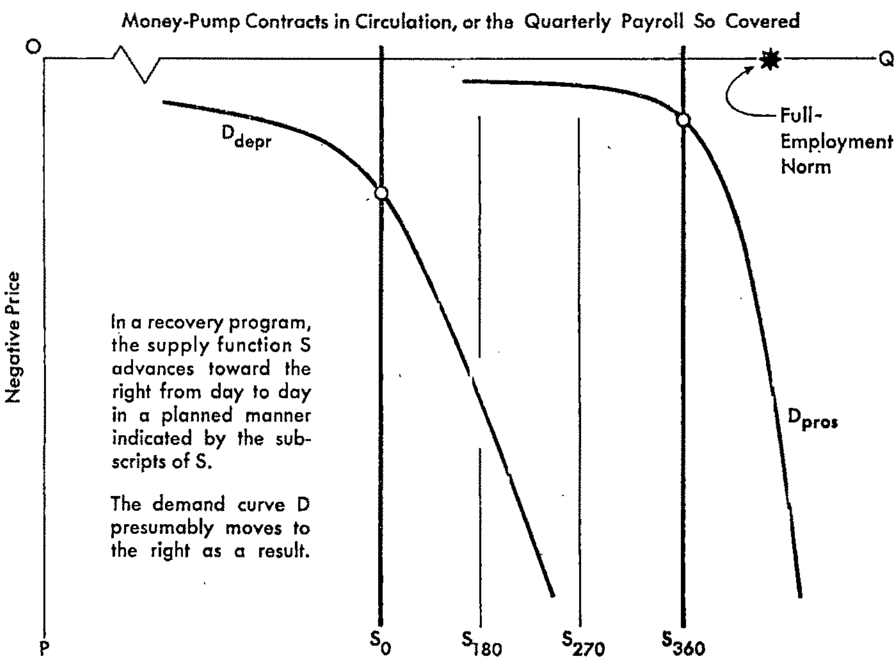

FIGURE 1. NATIONAL SUPPLY AND DEMAND FOR MONEY-PUMP CONTRACTS

In Figure 1 the demand curves D for money-pump contracts are affected by such things as the supply of labor available to be covered. But the shifts in which we are mainly interested are those associated with business cycles. Curve D_{depr} is assumed to correspond to a condition of unemployment and low economic confidence. Curve D_{pros} corresponds to full employment and high confidence. Government's objective is to issue and keep issued a supply of money pumps that will insure achievement of the full-employment norm.

[1] Two main elements of the scheme arose from consultation with A. G. Hart. The first is that of term obligations as opposed to my previous perpetual obligations. The second is that of a market mechanism for original issue, as opposed to coercive assignment of perpetual obligations. A number of observations, including the ones just made in the text, arose similarly.

The Method of Marketing. A money-pump program might be readily initiated during prosperity as a precaution against emergencies. But if a plan were put into effect during an emergency, buyers of money pumps would wish to protect themselves from capricious government action by assurance of, or even guarantee of, a vigorous government program for pushing money pumps onto the market during the term of the pumps being bought. For the purpose of recovery several types of marketing procedures may be distinguished. However, only one will be presented—the preferred form.

In Figure 1, predetermined rates of sale of money-pump contracts are rigorously maintained, the method of sale being essentially an auction. This method assumes that it is possible practically to coerce recovery, or rather to offer irresistible enticement, by allowing the negative price to reach perhaps a relatively high level at first for a short period. The supply function S for money-pump contracts at any one time is simply a rigid vertical line, indefinite in length. It is made to progress across the figure from left to right during the course of a year, more or less, come what may —slowly at first and faster later. Thus the government says to employers, in effect: "You'll buy these things at a certain speed, no matter what we have to pay you to take them." There is a special psychological value in such a program. The government can point to a graph of future employment and say, "That's the way we aim to make it happen." With a goal thus clearly defined and a plausible way to bring it about, confidence will be engendered perhaps to a high degree, helping to make the employment program a reality and preventing too severe or prolonged upswings in the negative price; or, what is the same thing, by dispelling that fear which would manifest itself by a sticky or capricious demand function.

It is unnecessary and no doubt undesirable to try to reach the full-employment goal until the plan is several months old. For instance, in fields such as custom construction and fashionable clothing, orders must precede increases in payroll. Recovery in such fields would have to lag somewhat.

An actual auction might be conducted by the government once a week in the principal financial city, during which all the week's supply of new money pumps would be sold to the low-bidding brokers and dealers present. But much the same result may be achieved by the use of written bids submitted daily. These bids would be opened every afternoon and the day's supply of money pumps would be sold accordingly. If by chance there were insufficient bids, the residue would be offered the next day. The weekly auction of Treasury bills is an analogous procedure.

For the accommodation of dealers, new money pumps would have a dormant period of, say, two weeks; that is to say, their effective period would be postdated. This interval would also serve for the formal binding of employers to their money-pump contracts.

The Quantity of Money Pumps. A legal norm for frictional unemployment has to be determined and taken into account so as to avoid the difficulties of overemployment as well as those of unemployment. A politically palatable expression of this norm might be in terms of the average number of

days out of work between jobs. The percentage of unemployment to be steered for could thus be derived.

Let us assume that the administrators of the scheme find that existing unemployment is at the legal norm for frictional unemployment and that conditions appear stable. To determine the quantity of money pumps to be put into circulation for the next period, they must still take into account anticipated changes in the privately employed labor force, including seasonal changes in so far as money pumps may be expected to help in offsetting them. The privately employed labor force is measured by the hours that the population wishes to work or, slightly more exactly for present purposes, by the payroll at existing rates that the population would prefer to earn. In setting the quantity of money pumps, the administrators (or should we call them the money pumpers?) should also allow for the price-level trend.

But the fates of individual firms and of small economic sectors and geographical areas can hardly be anticipated adequately, nor can nationwide money pumps be of much help in such problems in the short run. The residue of unpredictable and uncontrollable change is allowed for by routinely failing to issue quite enough money pumps to match the full-employment norm. In Figure 1 this gap appears as the distance between the final vertical supply function S_{360} and the star representing the full-employment norm steered for. The vertical supply function provides a "wall" against depression. But employment may of course go higher, even higher than the norm, for an employer is not compelled to hold money-pump contracts in order to employ. The vertical supply function is set at a level at which the actual employment over a period of time should average out fairly close to the full employment norm. Some experience will of course be required to accomplish this. Thus the economic ship is allowed to deviate from its course a bit with each swell, so to speak, but the average course is presumably maintained if tides and currents are compensated for.

Financing. If a money-pump program is to have the power it needs, a considerable supply of money must be on tap. If the negative price were to bump into a "ceiling," confidence in the plan would be sapped. If funds ran out, the results would be worse. Even a reasonable possibility of either of these occurrences would sap confidence in the plan and make necessary higher expenditure rates than would be required if plenty of money were known to be ready to use.

On the other hand, the receipt of much money in this way by business would hardly be politically acceptable unless the business community as a whole were ultimately to pay it back. The closer the tie-in between what business was paid and what business would later pay back, the more money could be made available to implement the money-pump program. Although I am not one to whom the corporation income tax is very attractive, business income does seem to be the only base which could furnish the potential which a money-pump program ought to have behind it. To complete the tie-in, part of the present corporation income tax might be declared an adjustable surtax, continually adjusted by a formula which would smooth

the repayments over a period of several years so that they would tend to offset the sums paid out in the long run. The negative-price payments would be received largely by the same parties who would reimburse the government out of profits later—received, that is, provided they cooperated in the money-pump program.

Under this financing arrangement, the national business community as a whole would be levying future taxes on itself according to its current acceptance of negative-price payments. But it will be clear that the acquiring of money pumps by a business would not appreciably affect national taxes on that one business, unless that business constituted a large fraction of the business community. Even in the latter case the incentive for smaller businesses to expand and to accept money pumps would remain in nearly full force, since each of these smaller firms would later pay but little of the tax revenue collectible as a result of their own accepting.

The fiscal aspect of money-pump contracts is countercyclical, since payments from government would be large only at a time of stress. Fiscal policy is a main reason for delaying the reimbursement of government by the business community. Business taxes earmarked for this purpose should be adjusted to reimburse the government over a period of up to, say, ten years. To try to square accounts between the business community and government every year or two would spoil this merit of the scheme.

Life-Span. So far we have mostly ignored the question of varying terms or life-spans of money-pump contracts. But the negative price of a contract would no doubt tend to be proportional to the term of the contract. Similarly, in cases of sale by employers the negative price would be prorated according to the unexpired term.

What is the optimum life-span for money-pump contracts? Suppose for a moment that they were all of two years' life-span. The general knowledge that the business community had contracted for an average of one year of future employment would be a powerful builder of confidence. This factor would tend to hold the negative price down. On the other hand, some employers with uncertain prospects (or with seasonal business) would hesitate to assume money-pump contracts for so long as two years, even though transferable. For a given quantity of money pumps issued, this factor would tend to raise the negative price.

Now suppose instead that an assortment of money-pump life-spans are available, all the way from three-month "bills" through one-year "certificates" up to five-year "notes." Thus the best balance of the above considerations may be obtained. One particular combination of life-spans offered for sale would presumably result in the lowest cost to the government over a long period. This combination is presumably the right one and could be approximated by the experience of the issuing agency.

For analytical purposes another quantity besides that of the negative price will prove useful. If the negative price of a money pump is divided by the total amount of the payroll disbursements contracted for by the buyer in buying it, then the quotient is a ratio (or percentage) which may be termed the "employment cost ratio." This is the cost of issuing money

pumps relative to the results produced. From the employer's point of view it is the compensation received relative to the employment burden assumed during a term. The form of Figure 1 would remain unchanged if the employment cost ratio were substituted for the negative price therein. The reciprocal of the employment cost ratio may be termed the "money-pump multiplier," for this indicates the relative efficiency of negative-price payments in maintaining employment.

II. *Problems of Administration*

Compliance. The money-pump records are kept on punched accounting cards in the regional offices of the appropriate government agency. A variety of life-spans and expiration dates are involved, and each class of money pump held by a company would presumably be represented by one card. The date of purchase is shown—also the date of sale if any, in order to prorate for those periods during which the obligation is held by another. From these master punched cards, statement-cards are prepared by machine every quarter. These are not sent out, but meanwhile every employer who files withholding-tax forms has received in the same envelope a punched accounting card with a blank space where the employer writes his sum of disbursements for employment, copied from his completed withholding-tax form. These cards are turned over to the agency administering money pumps and mechanically collated with the money-pump statement-cards, which were retained by the government. Thus one's compliance with his money pumps may be simply checked.

A penalty of 30 per cent of any unfulfilled employment obligations during a quarter is suggested. This is intended to be prohibitive under any conceivable condition. Because money pumps are acquired voluntarily and can be remarketed, they can and should be made to pump inexorably. On the other hand, hardship need not be imposed as a consequence of sudden resignation of employees or of some negligence in carrying too many money-pump contracts. Carry-over privileges may be permitted, by which small deficiencies may be made up in the next quarter. In addition, the penalty for small residual deficiencies might be set as low as 5 per cent.

What if an occasional family firm were to grant themselves high salaries in order to hold more money pumps than they were really entitled to? This loophole may be closed by denying money-pump credit to that portion of compensation in excess of, say, $2,000 paid to a person during a quarter (or $8,000 a year).

Self-Employed Persons. Should a lone proprietor or an "own-account" worker have the privilege of buying money pumps just because he employs himself? For this purpose, his earnings might be construed as a salary from himself as owner to himself as employee and thus eligible for money-pump coverage. Should not such individuals be on the same footing with enterprises of more than one man, which would be receiving negative-price payments?

The most workable approach appears to be to exclude proprietors and self-employed individuals, partners, and corporation officers both from

money-pump coverage and from the labor force as calculated for present purposes. This is within the general spirit of the scheme, which is to protect those who can hardly choose, under modern conditions, to become self-employed.

Strikes. At first thought it might be supposed that employers experiencing strikes should be permitted to sell their money-pump contracts back to the government for the duration of the strike. But this would set up the perverse incentive for some employers to incite strikes by imposing ridiculous terms on workers whom they wished to discharge during times of incipient contraction. Perhaps the most that can be done for employers directly is to allow a period of grace for negotiating sale of their money-pump contracts to other private parties. (Such lenience might be applicable to certain other emergency situations.)

The government can assure that there will be a market somewhere in the economy for such "jammed" money pumps by excluding strikers from the labor force as computed for present purposes, when they are not actively seeking other employment. This arrangement would protect employers from the otherwise crushing money-pump obligations of widespread strikes, while at the same time assuring employees that competition to employ them will remain prevalent.

Inflation. It will be clear that the general effect of the money-pump plan would hardly be deflationary. Rather it might be argued that wages would be bid up during a condition of assured full employment. Or it might happen that people would become so confident of the economic future that they would fail to save money. Would money pumps swamp us in an inflationary deluge, in the manner of the multiplied buckets of The Sorcerer's Apprentice?

We may presume that money pumps would be secure enough in their function to withstand inflation-arresting measures that would at present seem risky. Restrictive monetary measures could be applied without fear of causing another 1937. The government could show an occasional surplus as in days of yore without fear of consequences. In short, price-level policies could be pursued without at the same time threatening employment stability.

The graduated expenditure tax (or spendings tax), as analyzed most thoroughly by Nicholas Kaldor,[2] would deserve the fullest of consideration, since any deflationary tendencies of such a tax would be readily overcome. With such a tax, high rates may be levied when necessary without impairing the ability to save and invest. Such a tax can largely sterilize the inflationary effects of liquid accumulations in the hands of individuals, something the income tax cannot do. Heavy evasion might be less of a problem than with the income tax, since high spending is likely to be readily visible to all, and since the expenditure tax seems more just in that it makes important distinctions in favor of socially desirable private uses of money.

But measures involving as much change as the spendings tax probably are not essential to the reasonably smooth working of the plan. More

[2] *An Expenditure Tax* (London, 1955).

familiar fiscal measures will no doubt suffice, and the money-pump plan renders all the conventional brakes on the economy safer to use vigorously. Yet in all this it should be remembered that money pumps exert no special stimulus on the economy in good times, aside from the confidence engendered.

III. *Supplementary Devices*

Fenced Money Pumps. Preferential treatment for hard-hit geographic areas or industries might be desirable. However this should be done apart from the basic national money-pump plan. To give premiums on top of negative-price payments to, say, the capital-goods industries would necessitate compartmentizing the plan; that is to say, money pumps issued to the capital-goods industries would have to be "fenced in" there. Otherwise, all the money pumps offered would likely be bought up by capital-goods employers first, who would pocket the premiums and resell the money pumps to the rest of the economy. But this compartmentizing of the plan would put government in the position of regulating or maintaining the sizes of various industries.

Instead of premiums, additional booster-money-pump contracts might be issued to counteract local depression. The only employment which would be eligible for this money-pump credit would be that of residents of the particular areas designated. However, the negative-price payments on these fenced money pumps would be made to any employer, regardless of address. This would of course attract outside money and managers capable of providing employment. One may think of fenced, or localized, money pumps as being booster pumps coupled in series with the nationwide money pumps; a local businessman would frequently hold both and get negative-price payments with both.

Since it is impossible to completely avoid even very large variations in local employment, additional risk to employers would be incurred in purchasing fenced money pumps, even if the terms were short. Such a scheme probably could not stop a local depression from starting. But it might be able to shorten it and to reduce any need for migration. After local business was booming again (as we hope it would be), fenced money pumps ought to be discontinued for that area until needed again.

Fenced money pumps could even be issued by state and local governments. Financing could be done through taxes on those doing business locally or employing many local persons. Large disbursements during hard times could be financed through a system of loans from the national government.

In small areas it may not be practical to bring about that steady, predetermined increase in total employment which is presumed possible in large areas having many producing units and with no one of them forming a large part of the whole. Rather, a method involving a constant negative price might be more appropriate, the supply function then being a static horizontal line instead of a progressing vertical one. Thus a constant enticement would be offered to those who could provide employment. In spite

of any necessary deviations from a nationwide scheme, a trial in a limited area would no doubt be instructive.

A national plan of supplementary booster money pumps might be proposed to apply to depressed industries, in place of the above scheme applying to local areas. Which scheme is better? The local-area scheme will be better if labor mobility is less between different areas in the same industry than between different industries in the same area—as is generally probable.[3]

Excess-Reserve Permits. So far as has been explained up to now, the business community finds itself paying out large sums of money without being sure just how the money is going to find its way back. As part of the solution it must be made certain that commercial banks as a group will maintain a high level of loans and investments. But the range of conventional monetary policy can scarcely guarantee this certainty.

To meet this problem we may devise something suggestive of money pumps, namely, excess-reserve permits, which are marketable, separable, but permanent permits issued by the central bank and held by commercial banks. Each permit allows the commercial bank owning it to hold a certain quantity of excess reserves—say, $20,000. Only a limited number of the permits are issued, this number corresponding to what seems to be an adequate slack for peak excess reserves of all member banks, perhaps roughly $1 billion. Thus the program of permits limits a privilege otherwise exercisable without limit. Unlike money pumps, excess-reserve permits are not obligations to do something that involves disbursing money but rather are permits *not* to disburse money when one so chooses. Thus they have a positive market value rather than a negative one. A penalty is levied for holding excess reserves without holding a corresponding supply of permits. This would be subject to mitigating regulations in the same manner as with reserve requirements.

Excess-reserve permits constitute a general floor under bank credit but do not require any one bank to maintain a specified minimum of loans and investments, since the permits may be bought from other banks that have made loans recently. Maintaining such a floor under bank credit should be feasible if a sound general market for loans exists. The basic money-pump plan is presumed to assure that sound market. Thus the combination of the two schemes could make monetary management more of a reality than heretofore while at the same time decreasing the burden that occasionally has heaped upon monetary management.

Public Works, etc. If we presume that money pumps will assure full employment, will full employment generate enough demand to buy all that is produced? Experience suggests that within the year following an emergency initiation of a money-pump program a lag in consumption might be sizeable, depending on the state of public confidence, even though consumption would certainly be greater than before and would be rising.

Temporarily to offset any lag, reasonable increases in inventory and

[3] *Cf.* N. Kaldor, "Wage Subsidies as a Remedy for Unemployment," *Jour. Pol. Econ.*, Dec. 1936, XLIV, 721–42, esp. 727.

plant can presumably be financed with the help of excess-reserve permits. But if businessmen were to fear that such investment was rising too high, the negative price of money pumps would increase, reflecting businessmen's resistance to their continuance of full employment in the face of slack consumer demand. Yet before that happened, the government would have time to make ready a program of, say, light public works (and perhaps also one of adult education subsidies). This would permit some slackening in the number of money pumps outstanding; the government would be directly assuming the corresponding obligation.

To sum up, if money pumps assure employment, they thereby come close to assuring demand in the long run. Temporary or residual adjustments in demand presumably can be made closely enough through the use of accessory measures.

IV. *Advantages Over Similar Plans*

Wage Subsidies. Money-pump contracts might be described, in part, as a wage subsidy paid to business according to total employment provided. But if reimbursement is to be made by the business community in the long run, the name of subsidy seems inappropriate, except when speaking of individual businesses. Perhaps the term "incentive loan" is better for describing what the business community as a whole receives.[4]

There are other differences between wage subsidies as usually understood and the present scheme. A wage-subsidy scheme lacking the marketable-contract feature would have to disburse money *after* performance by employers. These disbursements would not be directly related to future employment. If an increase in the rate of subsidy were offered for the following quarter, its effect could not be measured until fresh employment statistics were accumulated. Meanwhile, the administrators could not know whether they had made the subsidy high enough or not. If they were to find that they had not, they might promise a higher subsidy rate for the remainder of the quarter, but that would complicate the administration of the subsidy. The result might be never-ceasing political demands for an increased subsidy, in order to feel sure that it was high enough.[5]

In contrast, the negative price of money-pump contracts changes itself from day to day. Thus the demand for money pumps is continuously measured and met. The rate of disbursement by government is impersonally determined by the market.

The Papen Plan. In Germany between September 1932 and April 1933, producers were paid 400 reichsmarks for each new employee hired. This was one phase of the Papen Plan, which was a failure; unemployment continued to mount. One thing to be learned from that experience is that plans which are merely static stimulants may not work. To implement fixed, one-

[4] However, see Kaldor, *loc. cit.* Much of the analysis in that paper will apply to the present scheme. *Cf.* William Vickrey, "Wage Subsidies and Unemployment," unpublished Master's thesis, Columbia University, 1937.

[5] *Cf.* A. C. Pigou, *The Economics of Welfare*, 4th ed. (London, 1932), p. 703.

time subsidies or tax allowances for hiring new employees requires arbitrary standards as to when the hiring was done and for what minimum period. Injustice between individual firms must result, depending on their recent history of hiring and laying-off. Thus such a plan cannot be made powerful enough to assure its operation without also becoming intolerably inequitable. As with some medicines, the side effects of employment subsidies necessitate weak prescriptions.[6]

If competition had been more prevalent in Germany, this phase of the Papen Plan might have been effective. As it happened, monopoly conditions generally prevented the fear that any competitors would accept the subsidy and lower their selling prices.[7] But the existence of effective competition will doubtless multiply the effectiveness of money pumps, perhaps decisively. Employers can hardly avoid acquiring them when their competitors are doing so and getting paid for it.

Hours or Dollars. The Papen Plan does suggest an alternate method of implementing the money-pump program. Could *hours* of work rather than dollars be made the criterion of compliance? Why couldn't a "pump" be rated in hours instead of dollars, obligating an employer to spend for 250 hours of employment per quarter, whatever number of dollars that would come to? There seems to be no compelling reason why either method could not be made to work.

Hour-rating of money pumps might be considered preferable to dollar-rating on the ground of the changing price level. Although corresponding adjustments could be made in the number of money pumps outstanding, perhaps the main counterargument is the presumptive ease and safety with which the price level could be controlled within an adequate program of money-pump contracts, as discussed earlier.

In favor of the dollar-rating plan, canceled checks are more convenient to verify than wage-and-hour records. On the other hand, the mass of figures currently collected by government and unions would render foolhardy any falsification of either hours worked or of sums paid. Yet I would like to think that the policing of business on such matters as wage rates and hours would ultimately be rendered obsolete under a program of money-pump contracts.

Incentive Taxes. It is instructive to apply the money-pump metaphor to other plans of this general class. In one early proposal an incentive tax was to be applied to a plant's deficiency in employment as related to its physical capacity to employ. Here the money pumps would in effect be attached to productive equipment wherever located. Other plans have proposed taxes on money or on idle money. Thus the pumps would be attached to the units of money themselves. These proposals vary as to the certainty and regularity of the resulting flow of income. They vary as to the direction of the flow induced—that is, as to whether the expenditure would immediately

[6] *Cf.* K. E. Poole, *German Financial Policies, 1932–1939* (Cambridge, Mass., 1939), pp. 40–41.

[7] *Cf.* G. Colm, "Why the Papen Plan for Economic Recovery Failed," *Social Research*, Feb. 1934, I, 83–96, esp. 90–93.

enter the flow of national income payments or dissipate itself in other ways.

In the present money-pump plan it may be said that the "pumps" are not affixed to anything, but rather are distributed about in a manner determined by individuals freely bargaining among themselves, imposing no limitations on liquidity, and granting but negligible capricious relative advantages to different firms. Thus the essential elements of control are separated from the nonessential and troublesome. The attainable result of this general approach, one may hope, would be a certainty of income flow fully compatible with flexibility and with freedom.

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Comment

Mr. Hazelett's suggestion of a control-instrument (his money pump) which would be bought and sold by private parties, and would serve as an instrument for open-market operations by public authorities, is extremely suggestive. In content, it is one of the most hopeful-looking of the long series of policy proposals designed to meet J. M. Clark's celebrated difficulty that labor cost, though an overhead for society, is a variable item for the individual-employer. In form, it suggests a widely adaptable linkage of control instruments with market mechanisms.

It is very common to carry on economic-control operations by buying and selling on an existing market. But this is a proposal to create both the market and the commodity it is to deal in, so that the commodity itself becomes an instrumentality of control.

Once we look at the proposal in this way, we can see that it represents a broad class of control possibilities. Some of these are familiar as academic examples, others as bits of economic history; but something is added when we see them as a class.

To begin with academic examples, we often present in the classroom cases where use of market mechanisms might forestall the creation of certain sorts of vested interests. Grazing rights in the national forests, for example, tend to become vested, and to attach an extra element of value to property in ranches which have enjoyed such rights. Since the grazing privilege must be rationed, economists ask, should the rationing not be by price, rather than by a procedure which sets up discrimination between a favored few and excluded many? Or in a city concerned with traffic congestion, the limited number of "medallions" evidencing permission to have taxis on the streets become pieces of transferable property, with a market value exceeding that of a new cab in many cities, recognized as vested in the successors of those who had cabs when the number was closed. If such an element of value is to be created by anticongestion measures, economists ask, should

it not be captured for the city as a whole by charging for it? And (to go a step further) might not the most suitable charge be found by holding an annual auction of one-year permits?

Historically, an interesting control-instrument market has existed in recent years in the Brazilian auctions of foreign exchange with which to buy imports. Economists have noted that in cases such as the British quota on Danish bacon, a gap is opened between the British demand price and the Danish supply price, inviting dealers on one side or other of the market to form a monopolistic organization and capture the difference. If import quotas are to be limited, economists ask, why not capture this difference for society by auctioning the permits? Once a multiple-currency system is adopted, an exchange auction serves this purpose. A less obvious historical example of a control-instrumentality market is the gold standard. Genetically, of course, the gold market predated control. But in the last few decades, the "commodity" gold has evolved into a control instrument, and the market (more and more clearly centered around government operations) has adapted itself. Commodity-reserve schemes propose to create a market in a commodity-bundle of fixed composition (designed to function as a control instrument analogous to gold); their working would hinge largely on the interplay between control operations and the evolution of the bundle-market and the related markets in single commodities.

A step closer to the Hazelett type of proposal are monetary devices suggested about the time of the Korean war by Jacob Viner[1] and E. A. Goldenweiser.[2] Viner pointed out that in the evolution of our monetary institutions, reserves had changed from being a safeguard for depositors to being an instrument to control the volume of money. Since the initiative in creating or destroying money lies not in accepting deposits but in making or collecting loans, why not link reserves with loans rather than with deposits? Goldenweiser pointed out that if control was sought through a security-reserve (then a very popular suggestion), it would be more effective to require a small percentage in a special type of security issued and regulated for the purpose and held exclusively by banks, rather than a large percentage in an already-issued type largely held outside banks. Putting the two ideas together,[3] it becomes evident that aggregative control of total loans, or of total earning assets of banks, or of categories of credit otherwise defined could be attained by setting up loan-reserve requirements to be met by special securities. These securities would then become in effect transferable loan-permits, which in times of credit restriction would reflect the special value of being able to carry on the restricted activity. Such a device would socialize the windfalls from restriction (like an ideally determined excise on restricted items in a war economy) while using market allocation machinery.

[1] See the commentary by the Federal Reserve Board in Joint Committee on the Economic Report, *Monetary Policy and the Management of the Public Debt* (Washington, 1952), pp. 482–89.

[2] *American Monetary Policy* (New York, 1951), p. 63.

[3] Some of these possibilities are worked out in my *Defense and the Dollar* (New York, 1953).

Hazelett's proposal not only dramatizes the fact that some controls can be seen as the creation of markets in control instruments. It also suggests that the one-way effectiveness of some controls might be turned into two-way effectiveness by redesign. The existing markets for control instruments, as far as I have identified them, are all restrictive devices. But Hazelett is suggesting two control devices—not only his money pumps themselves, but his permits to hold excess reserves—which would be capable of setting up incentives toward economic expansion. Perhaps monetary policy "cannot push on a string." But would it be possible to run the string around a snubbing-post, so that it could pull toward expansion in a depression?

For economic-control strategy in the broad, to set up a market in instruments of control offers a most desirable kind of feedback. Proposals for control by such techniques as excise taxes, subsidies, policy toward price discrimination, interest-rate manipulation, regulation of credit terms, all look very workable when we assume that the controllers are perfect forecasters, and all become much less likely to serve the proposed ends as soon as we allow for errors of forecasting. If a market can be created in the control-instrument, however, we have essentially a market mechanism for feeling out the level of tax or subsidy that it takes to get a specified quantitative effect. If the control is redundant, its operation will send back a signal to this effect by bringing the price to zero. If tension of the sort the control is aimed at is building up, its operation will send back a signal by pulling the price farther from zero. Thus this type of mechanism offers a control pattern that will adjust itself to the intensity needed to carry out an assigned job, and beyond that is capable of registering some of the pressures against which (or with which) policy must work.

Interest in this family of control possibilities is bound to vary with our faith or skepticism about the merits of regulating components of economic activity. From the standpoint of dyed-in-the-wool interventionists, here is a choice collection of possible methods of handling components that are refractory to available controls. From the standpoint of confirmed anti-interventionists, here is perhaps a Pandora's box of new ways to get in trouble. But even the free-market enthusiast cannot afford to look only at this aspect. In the first place, some of his own proposals really call for setting up markets in control instruments.[4] In the second place, there will always be situations where the free-market purist has lost the battle as to *whether* a component should be controlled and yet may have some chance of influencing the way it is controlled; the greater impersonality and automaticity of the control-instrument-market technique as against most alternatives should then recommend it. In the third place, the free-market enthusiast in the Henry Simons tradition recognizes the need for monetary and fiscal

[4] The proposal that defense planning should rely on free markets to do the jobs assigned during the second world war to priorities and allocations is a notable example. "Priority" is a temporal concept. If there were in fact two interlinked steel markets—one in tons of steel and another in delivery dates—the proposal might be workable. But the normal market has no machinery for reallocating delivery dates as among customers. In a mild emergency "gray markets" may take over this role; but the market would not have the right kind of flexibility for a real war emergency unless dealings in delivery dates were systematized.

stabilizers. While he may well object to the ramification of sector controls of this or any other type, he should not overlook the possibility that the Hazelett technique, with its direct applicability to money flows, might be transformable into a general monetary scheme of maximum breadth and impersonality.[5]

While he has taken pains to present his proposal as a possible additional tool in stabilization policy, rather than as an all-sufficient stabilizer, Hazelett seems to me too casual about the interplay of stabilization measures. If his scheme were adopted, the need for other measures might be less reduced than he suggests; but the conditions for their application might be more improved than he suggests.

Serious as the problem might prove, I pass over the question how the scheme would work in the face of a chronic "cost-push"—that is, a tendency for wage rates to outpace productivity and push up the price level. I have not been able to satisfy myself as to how the cost-push would develop under his policy suggestions. But since this difficulty is common to almost all discussions of stabilization strategy, Hazelett's proposal can be put reasonably well in context by discussing it on the assumption that the cost-push is kept under control through labor policy (private or public).

On this optimistic assumption, Hazelett's scheme has one obvious shortcoming as a self-sufficient stabilizer: it can underwrite payrolls (and presumably employment and production); but, to invert Mill's famous dictum, demand for labor is not demand for output. Even though employers maintain production, employment, and payrolls, their sales may fluctuate. The forces which otherwise would have set up a fluctuation in employment and output will therefore set up a fluctuation not only in the price of money pumps but in the state of inventory. The increasing inventory-risk that would arise in case of serious "involuntary" inventory accumulation makes it likely that recessive forces might sometimes produce a really stiff "negative price" for money pumps.

The logic of the money-pump scheme requires the government to pay whatever price it must to keep enough pumps in circulation. To keep the price from going outrageously high, other policy measures must be able to relieve the inventory situation before involuntary accumulation goes too far. If we regard the money-pump mechanism as the basic defense against deflation, other measures must at least be strong enough to keep inventory from growing too much.

On the other hand, if the scheme were once well established, we would expect business to absorb the early stages of an involuntary inventory accumulation with equanimity. The forces which otherwise would quickly initiate a cumulative decline in output and employment would express themselves at first in a stiffening of the money-pump price. Those responsible for policy would thus gain time to turn around. Tax cuts to stimulate

[5] The "contracts" involved—contrary to those suggested in such schemes as Mordecai Ezekiel's *$2500 a Year* (New York, 1936)—are nondiscriminatory. They are not tailored to individuals by negotiations with officials who have discretionary powers, but offered impersonally to those who choose to buy them.

sales, notably, could be withheld till it was clear that involuntary inventory growth was appreciable, and yet come in time to keep the money-pump price from rising to outrageous heights.

A corollary, which Hazelett also draws, is that on the upswing there could be an energetic use of tight money and tight fiscal policy to insure against inflation, without inhibitions arising from the fear of setting off a downswing. If restrictive policy were overdone, the fact would register itself in a stiffening of the money-pump price, and in reports from business that sales were not rising enough to validate the existing output-inventory position. In this case, a downturn would be in the making. But, for the reasons just mentioned, there would be time to diagnose the situation and adapt monetary-fiscal policy to it before substantive damage was done. If the adaptation was overdone, furthermore, the inventories accumulated before it started would be an anti-inflationary cushion, and their depletion would again give time for a turnaround of policy.

Perhaps Hazelett's scheme is too outlandish ever to have a chance. Perhaps its loopholes are broader than they look, and its incidental ill-effects deeper. Certainly I would not be willing to testify that it was sound practical policy (in case it became of political interest) till these matters had been much more thoroughly thrashed out. Yet the argument just presented suggests that such a scheme would have huge advantages. Under almost any other stabilization strategy I have seen suggested,[3] the interplay of inventory position, business expectations and employment is capable of giving a downswing some momentum before the situation is recognized and corrected. The fear of such a result inhibits stabilization measures to check possible inflation in a period of prosperity. The ideal policy would be one so designed that we would always have at the beginning of a downswing what Keynes termed a "breathing-spell"—a period long enough for it to be possible to see clearly that activity was tending to sag, yet not so long that real damage had yet happened, or that the downswing had gathered momentum. Hazelett's proposal offers a mechanism that should make such a breathing-spell a regular feature of business peaks. If this proposal proves objectionable, who can devise an alternative proposal with the same virtue?

ALBERT GAILORD HART*

[3] A policy combination including a commodity-reserve currency, *if* the latter could be made workable on a broad enough base, would have the same advantages. But most students of commodity reserve feel that at best it could cope with the raw-material aspect of inventory, leaving inventory of finished products as a destabilizer.

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Automobile Taxation and Congestion

How might we make more efficient use of that increasingly scarce resource—street and parking space in nonrural communities (and perhaps even highway surface)? Traffic and parking problems directly affect almost

everyone in the country. The indirect effects are even more extensive. The costs of congestion, though defying close measurement, are undoubtedly huge. Solution must be largely a social undertaking; *i.e.*, individual families and businesses pursuing their own self-interest will not produce a result which is best for the public as a whole.

One part of the solution is to increase available street and off-street parking space. At best, however, any reasonably effective program would take many years, especially in metropolitan areas, and would be incredibly expensive (in terms of either dollars or the other things that would have to be sacrificed—housing, education, clothing, autos, etc.). Another approach, and one with conspicuous merit, is to use the pricing mechanism (such as high parking charges) to help allocate a limited supply.

Still another method seems worth considering—the graduation of annual license charges by auto length or by length and width combined. The main objective would be to induce the public to buy cars that would use less of the scarce, publicly owned resource which when used by one person is taken from others. A secondary objective would be an increased contribution to the public treasury from those choosing vehicles that use more public property. To illustrate, assuming that length alone is the basis of graduation, the annual fee might be $1 for each inch of length between 180 and 185 inches, $3 per inch between 185 and 190 inches, up to, say, $10 per inch of length exceeding 195 inches. Rates might well be less for cars already in existence when the new system became effective. An effective date of 1960 or thereabouts should give auto manufacturers time to plan for the transition.

In some states auto value might also remain a consideration in setting the fee because of ties to property taxation. However, since streets and highways are now built to carry much heavier loads than the heaviest auto, weight is outmoded as a rational basis for graduating charges for passenger autos.

Total dimensions, however, are of great significance. Length and width are of concern not only to the owner but also to others who wish to use the same joint facilities (streets), and to taxpayers who may be called upon to provide facilities for which the demand depends partly upon size of vehicle. Some of the driving of almost every motorist is in areas where he uses a very scarce resource, urban street space, for which no charge is feasible. Economizing its use is very much in the public interest. With the motivations now provided, however, individual actions do not combine to serve the public interest to best advantage. A license system providing strong inducements to use somewhat smaller autos—and exacting a much higher fee than today from those who continue to choose to use more of the scarce resource—could contribute to a solution.

If the average new auto were only a foot shorter, and if 4 million a year were destined for city use, about 800 miles of street-space equivalent would be released. Over a period to, say, 1970, the total would indeed be impressive even in relation to the new construction planned under the 1956 highway law. The gain would be without any expense to government. The only

cost would be the loss of satisfaction from the marginal foot of car sacrificed by those deciding not to pay the higher fee.

The system would be fully successful only if it induced auto manufacturers to produce shorter cars. No one state acting alone could create enough such pressure. How much cooperation would be required? Perhaps eight or ten of the most populous states acting together would exert enough influence. Another possibility is a recasting of the federal tax on new autos to produce the general effect. A shift from value, the present federal tax base, to size, without appreciable change of revenue, would seem appropriate. It would no more infringe on state sovereignty than does the federal highway program.

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BOOK REVIEWS

General Economics; Methodology

The State of the Social Sciences. Edited by LEONARD D. WHITE. (Chicago: University of Chicago Press. 1956. Pp. xi, 504. $6.00.)

This volume consists of some thirty papers read at the celebration of the twenty-fifth anniversary of the Social Science Research Building of the University of Chicago in November, 1955. Knowledge of that fact should suffice to forestall disappointment of anyone who reads too much into the title.

Although in the table of contents the papers are listed without classification, an effort toward coherence can be found in the full celebration program which is reproduced in an appendix. Roughly the first 350 pages of essays are classified under "Social Science as Science"; the remaing 125 pages are concerned with "The Role of the Social Scientist." Under the former head, the topics are, in this order: models in the social sciences, psychoanalytic thought and the social sciences, the comparative approach to the study of culture, analysis of social structure, the study of small groups, culture and personality in relation to human development, ecological and cultural aspects of urban research, industrial organization and economic growth, international aspects of economic stability, and the study of public opinion. Under each topic are listed from one to three papers.

"The Role of the Social Scientist" consists of a group of "conferences," each touching upon one or more topics: "The Social Scientist and the Civic Art: Economic Policy," comprising "The Role of Government in Promoting Economic Stability" and "The Role of Government in Promoting Economic Growth and Development"; "The Social Scientist and the Civic Art: Politics," comprising "The Social Scientist and the Administrative Art" and "The Art of Diplomatic Negotiation"; "Humanism and the Social Sciences"; "Civil Liberty"; and "The Dilemma of Specialization." Interspersed are an opening address by Frank H. Knight and various luncheon, dinner, and convocation addresses by David Riesman, Walter Lippmann, Lawrence A. Kimpton, and Louis Gottschalk.

All the papers are by authors notable in their fields, and most of them will be found individually interesting to many readers, although some are rather specialized. As a totality viewed from the standpoint of an effort to portray the state of the social sciences as a whole or of any particular social science, they suggest a less certain and less satisfactory conclusion. Even for such a purpose the collection is far from useless; but such success as is achieved does not add up to any landmark of integrative appreciation. Rather, the message emerges, first, in no small degree from the very lack of integration among the parts and, second, from a display, to an extent, of the state of thought of men about particular narrow areas of analysis

or application in which they have specialized. With regard to the second source of insight there is a considerable disparity of treatment. In only a minority of essays is an attempt made to state more or less explicitly the condition or flow of thought in the specific area. Such efforts inevitably rest upon summaries of or allusions to recent writers, and these latter are not infrequently handled as if intended for readers more versed in the special field than reasonable expectation would suggest. The special-field treatments which make an effort to describe the flow of recent thought are mainly Bernard Berelson's "The Study of Public Opinion," the essay on urban research by Philip M. Hauser and perhaps that by Everett C. Hughes, Harold D. Lasswell's "Impact of Psychoanalytic Thinking on the Social Sciences," and in a sense James C. Miller's previously published report on the general behavior systems theory which he hopes will integrate the social sciences. Most of the other narrow-field studies are largely samples of research or application.

Notably lacking is any essay dealing with the state of economics. The field "as science" is with imperfect congruity represented by two very good papers on specific problems, one by Stigler on "Industrial Organization and Economic Progress" and one by Viner on "Some International Aspects of Economic Stabilization." As exemplifying the role of the social scientist, two studies are presented on the role of government: Roy Blough on promoting economic stability and T. W. Schultz on promoting economic growth. Herbert A. Simon's thoughtful essay on "Models: Their Uses and Limitations" will be of interest to economists among others.

It was implied above that the book does not convey any great sense of basic and agonizing reappraisal. By and large, the problems of the social sciences seem to consist in the need for better method; and better method means some better application of the method of natural science—which is probably not far away. In this sense the tone of the social sciences is perhaps more confident than ever. Over specifics of application of scientific method there is some rending of garments.

An invitation to an agonizing reappraisal is present to a degree sufficient only to emphasize the general sense of confidence. Frank H. Knight, in his opening address entitled "Science, Society, and the Modes of Law," notably does not set the tone of the book. He once more specifically attacks "scientificism": the conclusion, after long recognition that inert natural objects are not like men, that men are like inert objects, mechanisms responding strictly in terms of cause and effect; the "romantic delusion" that application of scientific method to the problems of democratic society can produce marvels of prediction and control similar to those achieved in natural science; and the failure to accept the irrelevancy of natural science methods to the more crucial problem of democratic society—agreement on cultural norms. Much later in the book, Leo Strauss, in "Social Science and Humanism," speaks as if noting and supporting Knight's implied wish to orientate social science by reference to social philosophy: " . . . the only alternative to an ever more specialized, ever more aimless,

social science is a social science ruled by the legitimate queen of the social sciences—the pursuit traditionally known by the name of ethics." And his final challenge takes this form:

> Many humanistic social scientists are aware of the inadequacy of [ethical] relativism, but they hesitate to turn to what is called "absolutism." They may be said to adhere to a qualified relativism. Whether this qualified relativism has a solid basis appears to me to be the most pressing question for social science today.

It would seem moderate to wish that, should the messages of these lonely voices be relegated to the history of thought, the cause of their relegation be a more satisfying one than the mere deflection of scholarly attention by reason of the rules of strategy for obtaining foundation grants.

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Mensch und Wirtschaft. By OTTO VON ZWIEDINECK-SÜDENHORST. (Berlin: Duncker & Humblot. 1955. Pp. ix, 440. DM 32,60.)

This important volume is a *mixtum compositum,* containing a generous sample of articles and essays on a wide variety of subjects by the noted Austrian-born German economist, Professor von Zwiedineck-Südenhorst. Never one to specialize on a narrow subject, the author's articles touch on almost all the important facets of the economic mosaic. In addition to an autobiographical introduction, there are fourteen articles; they are all reprints, written between 1909 and 1953.

It is impossible to do justice in this short review to Zwiedineck-Südenhorst's achievements and to appraise every one of the papers included in this compendium. To this reviewer, the following four articles stand out as milestones in Zwiedineck-Südenhorst's professional development as an economist.

In "Income Formation as a Determinant of the Value of Money" (*Die Einkommengestaltung als Geldwert Bestimmungsgrund*), first published in 1909, Zwiedineck-Südenhorst seems to emphasize the role of the state in the evolution of money, and finds this role useful in clarifying the relationship between the value of money and income distribution. He made a considerable contribution to the theory of the value of money when he pointed out that money has a subjective exchange value. This subjective value stems from the fact that, for the individual, the value of monetary units depends on his income. On the basis of the foregoing analysis, and foreseeing the "propensity to consume" concept, Zwiedineck-Südenhorst tried to prove that changes in income result in changes in the value of money.

His "Power of the State or Economic Laws" (*Macht oder ökonomisches Gesetz*), first published in 1925, continues the researches of Böhm-Bawerk and Wieser on the relationship between the government's regulative powers and economic laws. Zwiedineck-Südenhorst is best known in the United

States for his emphasis on socio-legal factors; he is a member of the group which has attempted to study government control as a social factor distinct from economic values, and the role played by the law in limiting economics.

In "Unemployment and the Law of Shifting Income Formation" (*Die Arbeitslosigkeit und das Gesetz der zeitlichen Einkommenfolge*), Zwiedineck-Südenhorst considers that he is expressing a new concept in stating that there is a difference in time between the origin of income and the arrival on the market of the output on which this income is based. For this new principle he has a new name: "the law of shifting income formation." It is to his merit that he pointed out this important consideration in connection with boom trends.

In "Rent as a Principle and as Residual Income" (*Rentenprinzip oder Rentenstellung*), written in 1932, Zwiedineck-Südenhorst shows himself to be the champion of the trend to make the phenomenon of rent a general one. He regards even pure rent as a differential, because this economic result is obtained by subtracting costs from gross income. Therefore, according to him, the result is to be looked upon as a differential, the difference between income and costs. He concedes, however, that in such cases the residual rather than the differential character is apparent. Zwiedineck-Südenhorst definitely labels it differential income in those cases where outcome of production is greater than expected by the producer. He calls such differential income a difference within the plant, and distinguishes two subgroups; *i.e.*, rent arising from the prices of the product, and rent arising from the prices entering into cost. The former appears when the producer is able to sell under more favorable conditions than other producers; the latter occurs when there is a similar advantageous price formation in the costs of production.

These "rents," however, are no more income than is the rent of the consumer. Just as the rent of the consumer is only savings and not income, similarily Zwiedineck-Südenhorst's new categories of rent are not differential incomes, but simply savings in expenditure. The concept of differential income includes the idea that the differential should show in the comparison of various economies. "Differentials" appearing within one and the same plant do not produce differential income in the accepted economic sense of the word.

The reader cannot help admire the many-sidedness of this compendium. It contains, however, only a small fraction of Zwiedineck-Südenhorst's remarkable literary contributions. There is hardly a special field of economics which is not represented here. Few economists in our days can muster such erudition and versatility.

Economists of all nations are indeed indebted to the editors of *Mensch und Wirtschaft* for making these articles available at this time, especially since most of them are hard or impossible to obtain.

GEZA GROSSCHMID

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Price and Allocation Theory; Income and Employment Theory; Related Empirical Studies; History of Economic Thought

The Meaning and Validity of Economic Theory. By LEO ROGIN. (New York: Harper and Brothers. 1956. Pp. xvii, 697. $6.50.)

It is good to have Rogin's history of economic thought; no one—not even a still living Rogin—could write it again. Seldom has an objectivity-minded, scientific treatise been so closely tied to a particular date in history (the great depression) or to a particular social viewpoint (far-left New Deal). I do not believe that the book will be considered an important contribution to the history of economics, but it sheds an illuminating light on a branch of radical thought in America circa 1940. And although written in a stiffly formal and repetitive manner—the author did not live to revise it—it is a work of real fascination.

For Rogin, the *meaning* of a theory—the objective, significant meaning—lies in its policy implications. These implications can be of at least three sorts: (1) those explicitly drawn (whether logically or not) from the theory by its author; (2) those implicit in the theory; and (3) those which are read into the theory by contemporaries who are influential in the realm of policy. Of these classes the last is much the most important: the theory as it lives in the market place of ideas has the implications for policy that count—to the extent that the theory influences policy at all. I know of no adequate analysis of the views of a ruling theory (such as Ricardo's) as held by the men of affairs and, at a degree removed, by the men of letters, and Rogin ignores the study of this class of policy views.

If one does not study the policy implications drawn by eminent contemporaries of a theorist, then surely the theorist's own policy views are more important than those implicit in the theory. The views were actually expressed, the implicit recommendations (unless they were drawn by eminent contemporaries) were only immanent. Moreover, if a theory is at all general, it seldom has specific policy implications. From the wages-fund theory, which the classical economists generally held, one can (not must) deduce that labor unions are undesirable; from the Malthusian theory, which they also held, one can (not must) deduce that they are desirable because their gains, if held, impose no long-run costs on the remainder of the labor force. Especially it is undesirable to draw, not the logical implications of the theory for policy as that theory was understood at the time, but the implications as they appear a century later to an economist with a wholly different *Weltanschauung.*

Yet these latter implications are precisely those which Rogin studies. The subjective intent of the theorist with respect to policy is of no relevance, he claims, and only what the theory rigorously implies for policy really matters. For example,

> The foregoing interpretation does not mean to assert that Say deliberately erected his theory with the single-minded intent of justifying

> income to property. In the first place, the present volume is not concerned, except incidentally, with the subjective premises of theoretical formulation, but rather with the objective meaning of theory as contingent on its orientation to the institutional environment. (P. 214.)

Rogin identifies this objective meaning with the "public" meaning of a theory (*e.g.*, pp. 10, 468)—that is, with our "eminent contemporary" meaning. But the identification is neither documented, nor, as we shall see, credible.

In practice, Rogin almost always attributes to the author of a theory the implications that he (Rogin) draws from the theory, and supplies a corresponding purpose for the theory. I give a few examples:

> . . . it may be that for Malthus the real inadmissibility of this practice [birth control] resides in the circumstance that it would so diminish the supply of labor as to disturb the working of the institution of private property as an instrument of economic coercion essential to the production of the economic surplus. (P. 170.)

> . . . Say confronts the problem of industrial crisis and depression with the theoretical apparatus he had already erected in his orientation to other practical issues, pre-eminently the defense of the institution of private property. . . . (P. 223.)

> Abstinence is, in fact, the keynote of the theory of the later Senior. . . . It is the fulcrum to which is applied the lever of Senior's economic theory, in order to pry the populace loose from its dangerous illusions concerning the role of large incomes to ownership and private accumulation. (P. 264.)

> For, in an important sense, his [Böhm-Bawerk's] monumental work on *Kapital und Kapitalzins*, which has its acknowledged practical, social origin in the conflict between labor and capital, is ultimately dedicated to a refutation of the socialist exploitation theory. (P. 517.)

These allegations of conscious implications of, and motives for, the formulation of theories are not demonstrated, and often they are completely farfetched. Thus Rogin draws a distinction between the economic theory of Senior before and after the autumn of 1830, the division corresponding to machine riots which were held to have aroused Senior's fears of the laborers and diminished his benevolence (pp. 239, 240, 243, 248, 251, etc.). Not even a modicum of evidence is given for this alleged change of view,[1] nor for this reason for any change that might have occurred.

In the main, then, Rogin discusses policy implications that should have been drawn by the author and his contemporaries—that is, if they had also been left-wing New Dealers writing in the deepest shadow of the great depression.[2] This vantage point leads Rogin to both a remarkable distribu-

[1] The basis of this charge is that Senior had not opposed unions and paternalistic labor legislation before 1830—possibly because he had not written on them. See Marian Bowley, *Nassau Senior* (London, 1937), Part II, Ch. 1.

[2] Rogin's own position, which is not under consideration here, is most explicitly stated on pages 425–27. It is composed chiefly of a Marxist critique of capitalism and a socialist-planning version of neoclassical economics with democratic political processes. But see page 410, n. 218.

tion of emphasis and a remarkable set of deductions of policy implications of theories.

The crucial implications for policy are usually in the standard Marxian categories: private ownership (=monopoly) of the means of production (pp. 161, 167, 170, etc.), devastating cyclical fluctuations (p. 261), class struggles (pp. 105, 155–56), progressive monopolization (pp. 146, 277), extreme income inequality, poverty and exploitation (pp. 102, 214). Policy implications which do not fit well into these preassigned categories are ignored, minimized, or distorted by the author's perspective. For example, Ricardo's writings on monetary policy are completely ignored, although they are at least as closely oriented to policy as his other work, and so too is his discussion of taxation.

The derivation of implications is equally one-sided. Ricardo, "the first great economic liberal who accepted modern industrialism wholeheartedly and wanted to implement it" (p. 110), served this end by his powerful arguments for free trade in corn (p. 128). He advocated a capital levy because the taxes for debt service fell on profits, and hence discouraged economic progress (p. 142). A remarkable exponent of industrialism was Ricardo, who had scarcely any knowledge of, and little interest in, the industrial life of his Britain. He had peculiar views for a wholehearted exponent: he argued that wage incomes should not be taxed, and that manufactures should not be protected by duties. Again, for Rogin the anchor of Smith's theory was the chapter (Book II, Ch. 5 of the *Wealth of Nations*) in which he argued that capital was most productive in agriculture—this is presented as the basic weapon of his attack on mercantilism (pp. 65, 71 ff.). To all other interpreters this chapter is a small scar from verbal duels in Paris.

The relationship of theory to policy is an important aspect of *Dogmengeschichte* and one which has received less study for the post-Smithian period than it deserves. We owe appreciation to Rogin for emphasizing it. But we should study, not primarily the policy questions that now seem crucial to the particular historian, but those which seemed important to the economist at the time. It is my impression that theories were seldom devised, and seldom accepted by fellow economists, to reach definite policy positions; sometimes, indeed, the theories have led their owners to policies which no sensible man not being misled by theory could possibly entertain. Conversely and perversely, many policy corollaries of a theory were expressly spurned by their authors; for example, Marshall demonstrated that excises on necessaries entail a smaller loss of consumer surplus than excises on luxuries, and he did *not* recommend that excise taxes be imposed primarily on goods consumed by the working classes. The subtle relations between theorizing and policy attitudes are not to be disentangled with a Marxian crowbar.

The *validity* of a theory, according to Rogin, is dependent not so much upon internal coherence or explanatory value (although these are not irrelevant) as upon its congruence with the main economic and political currents of its time. "[Validity] involves judgments as to the adequacy of the

theoretical articulation in the light of its practical aim, and judgments as to the possibility of the aim being realized in given historical circumstances" (p. xv). It is not clear how, on this criterion, a valid theory is to be distinguished from a successful one. But the criterion is surely superficial: every widely held theory is successful in the sense that it has had a real, although frequently a very subtle, influence on policy. The economists of the last hundred years who have held up free trade as a goal have been unsuccessful to the extent that protectionism has been increasing, but they have been successful to the extent that protectionism has had a smaller triumph than it would have had if the economists had not been opposed to it. Even in their opposition to "successful" policies the theorists have been more influential than they would have been had they jumped upon every political bandwagon.

Two examples will serve to illustrate Rogin's use of the criteria of validity. The first is the judgment on the Physiocrats, with which I am inclined to agree:

> When, as with the physiocrats, the practical interest is dictated preeminently by the requirements of capitalist entrepreneurs in agriculture and by the fiscal requirements of a moribund state, at a time when nonagricultural capitalists were leading in economic, political, and social reconstruction and on the eve of a time when the dynamics of accumulation and productivity were to be associated primarily with the career of industry, then the value of the doctrine not only is limited for the later demands of effective policy, but is also highly qualified in its own age and in the country which gave it birth. (P. 50.)

One would have thought that by the same criteria, Ricardo's successful plea for free trade would be judged highly valid, but not so: Ricardo did not orient himself to the "strategic factor" in his society:

> In terms of the professed utilitarian perspective of the Ricardians, their strategic factor should have been, not the Corn Laws with a dubious "dribbling down" theory of the material welfare of the masses, but the unrestricted acquisitiveness of those who were in control of the means of production. (P. 153.)

And so, validity, like meaning, is judged in terms of Rogin's personal positions (as he once concedes, p. 103).

The long and interesting chapter on Marx which marks the midpoint of Rogin's book and of the period covered deserves a brief comment. In broad outline it is a sympathetic interpretation of Marx, but Rogin is critical of those elements of the theory which are designed to be revolutionary propaganda (labor theory of value, theorem on declining profits). He believes that Marx's great error was to underestimate the roles of labor combination and democracy:

> As indicated earlier in our criticism of the manner in which his theory on the whole neglects the implications of state intervention and the increasing political and economic organization of labor in expanding political democracy, his theory of wages is far less a prophecy of the future

> trend of wages than a description of the untrammeled consequences of the exercise of economic force. (P. 402.)

In terms of Rogin's own framework I think this criticism is overstated: the revolutionary and antidemocratic elements of Marx's thought possibly have been even more congruent with later developments than his more positive economic theory.

Beginning with Walras, Jevons, and Menger, Rogin's treatment undergoes a moderate change of emphasis. The meaning of a theory becomes somewhat less a matter of policy implications and more a matter of analytical content, and validity becomes more a matter of the empirical validity of the theory. To the extent that the shift occurs, it represents an abandonment of the central thesis of the volume:

> My research into the history of economic thought has tended to confirm . . . that significant new orientations in economic theory first emerge (and persist, often in a changed role) in the concealed or unconcealed guise of arguments in the realm of social reform. (P. xiv.)

But partial abandonment was inevitable: the science was becoming professional and much of its subsequent development was in response to its professional needs, not to policy problems or outside pressures. The marginal utility theory, or the general equilibrium theory, or most of Marshall's analytical contributions cannot be traced to extra-scientific influences, and Rogin no longer attempts to discuss these fundamental developments in terms of his basic plan. His failure is not novel: other historians of doctrine, such as W. C. Mitchell, who sought to relate economics to contemporary economic or social or political developments, also begin to shift ground when they reach the 1870's.

The abandonment is of course less than complete, and a few examples of Rogin's later judgments may be instructive:

> Instead of working on the problems of his own time, he [Walras] worked implicitly on those which belonged to the time of Adam Smith. In doing so he betrayed his own protagonism of a *socialisme synthêtique*, . . . (P. 438.)

> In its practical orientation, Jevons' theory of capitalization appears to be adjusted to the task of allaying the "delusive" conflict between labor and capital; . . . (P. 468.)

> Why does Marshall in his *Principles* fail to develop the abundant grounds of monopoly? Why does he, instead, dwell on the inhibitions to the growth in the size of firms? Because the problems of poverty and the diffusion of material welfare are to be solved in the context of private enterprise educated to "chivalry." (P. 581.)

In the case of these later economists, however, Rogin does not ignore the large parts of their theoretical work to which he cannot attach a meaning in terms of policy implications.

Instead, he shifts his attention to their analytical characteristics and especially to their empirical reality. The main judgments are not surprising:

the theory of competition is of no relevance to the monopoly-ridden economies of their times and ours, the consumer theory supports no theorems on maximum satisfaction because it accepts the existing extreme inequality in income distribution and disregards unemployment, and so forth. The "realism" of economic life continues to be the set of clichés which dominated the radical intellectual outlook of 1940.[3]

The promulgation of heartfelt views is the duty, not merely the right, of the scholar. But there is no poorer choice for the doctrinaire scholar—who tightly grasps Eternal, Pulsing Truth—than intellectual history. All his conscientious scholarship, all his talents, his sincere and urgent desire to improve the world—and Rogin had these in ample measure—cannot help him to enter the minds of other economists: he is like an efficiency expert who wonders why all 22 men do not join in moving the football in one direction. When he embraces also the thesis that theories are—and should be—formulated for policies, and forgets that theories exercise large and often unpredicted effects even upon their authors' views of policy, he is doubly lost: he has become a self-appointed schoolmaster handing out grades to students who did not take his course, and in fact were studying a different subject.

GEORGE J. STIGLER

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Trends and Cycles in Economic Activity. By WILLIAM FELLNER. (New York: Henry Holt & Co. 1956. Pp. xiv, 411. $5.00.)

The postwar extension of Keynesian concepts to problems of economic growth has been accompanied by a shift in emphasis in cycle theory from the investigation of minimum requirements for cyclical behavior towards the study of the interrelationship of cycle and trend. In this book Professor Fellner, one of the pioneers of growth theory, has carried the process to its logical conclusion: the requirements of dynamic equilibrium are placed firmly in the centre of the stage, cycles are attributed to the failure of these requirements to be satisfied, and the trend is regarded as a cycle-lowered equilibrium path. To the reviewer this general approach, and particularly Fellner's view that dynamic equilibrium is a range and not an unstable point, are highly congenial. On the other hand, important facets of his central thesis are debatable, and raise doubts about his analytical methods; while his imprecise and repetitive style and the wide range of topics he selects for discussion make it difficult to follow and evaluate the detailed elaboration of his central thesis.

The book begins with a lengthy survey of statistical methods for finding trends and cycles. The author makes rather heavy weather of Frickey's

[3] Two quotations will suggest the insularity of such views from empirical research:

"There are few serious students of history who would assert that any great improvement in the material welfare of the laboring class would have taken place without the effective organization of labor." (P. 167.)

"But there can be no doubt that the *relative wages*, the share of the workers in the national income, declines with capitalist development." (Pp. 406–07.)

link-relative method, and relies for synthesis on the methodologically dubious principle that all reasonable methods of cycle-dating should give results conforming to the popularly recognized turning points. He concludes in favor of recognizing only the National Bureau cycle, while admitting the influence of longer-run irregular rhythms on its severity. Condensed narratives of major downturns are used to highlight the main points of the subsequent theoretical analysis.

Growth theory is introduced in Part II, which starts from the familiar proposition that new investment must be increasing if past investment is to justify itself—the exposition of this crucial proposition is peculiarly tortuous and difficult—and the empirical fact that the proportion of income saved tends to long-run constancy. The problem as Fellner sees it is to explain successful growth in the past. While he allows some adjustability of the capital-output ratio, he believes that the adjustability of relative income shares and the profit-plus-interest rate is limited. Consequently, in contrast to classical theory, he finds the equilibrating process in the fact that technological and organizational improvements tend to be forthcoming on the scale required to offset diminishing returns to capital (which tends to grow faster than labor) and of the type required to permit equilibrium at rising real wages (thus avoiding "social friction").

Part III elaborates on the theoretical requirements of dynamic equilibrium. The "condition" of dynamic equilibrium is a joint one, involving both general price stability and equality of planned investment with actual savings (the two are interdependent—price stability requires appropriate spending propensities for monetary policy to influence, and ensures equality of planned with actual savings). Since the condition is subjective, it must be studied via its objective corollaries, of which three are distinguished: improvements adequate in quantity and quality to offset diminishing returns to capital without "overshooting" (reducing equilibrium real wages); gradual structural change and sufficient resource mobility; and absence of legal, institutional, and policy-conflict obstacles to proper monetary management.

Failure of the corollaries to be satisfied implies scarcities and leads to cycles, which can be described in terms of alternations in the rate of overcoming scarcities. Part IV discusses the familiar paradoxes of disequilibrium, presents various reasons for being less pessimistic than one might be about the effects of a permanent stoppage of growth, and criticizes mathematical and econometric models fairly but severely.

Part V is concerned with a variety of broader aspects of growth: preconditions for the growth process as the author conceives it are discussed—adequate initial resources, administrative unification, materialistic ideology—and the prospects for growth by "latecomers" commented on. Turning to developed economies, Fellner is concerned with the possibility that the new orientation towards economic equality and security will seriously inhibit growth processes and the survival of capitalism; on balance he is optimistic, with a major reservation about the Russian military threat.

The main theme of the book is its insistence on adequate technological

and organizational improvements as the chief requirement for successful economic growth. Fellner's exposition of the mechanism by which such improvements are induced (Ch. 8) and his use of the hypothesis in the interpretation of past trends in capital-output ratios, distributive shares, and yields on capital (Appendix to Part III) are substantial original contributions. Nevertheless, reflection on this theme prompts the suspicion that Fellner may have been led from a spurious problem to a spurious conclusion: only the acceptance of the Keynesian assumption of behavioral rigidity as the natural state of capitalist economies makes successful economic growth in the past a major miracle to be explained by special factors which must then be elevated into preconditions of successful growth. The fact that in the past improvements offset diminishing returns to capital does not prove that growth could not have proceeded satisfactorily with diminishing returns, and still less does it establish an allied theme of the author's, that capitalism and Western democracy will break down if insufficiently rapid growth is generated—a proposition so far unsubstantiated. On a narrower front, the improvements hypothesis, though it illuminates, does not explain entirely satisfactorily the cycles of experience.

A review of this length cannot do justice to the breadth of Fellner's range and the subtlety of his thought on many detailed points of theory. These qualities, unfortunately, entail a certain lack of integration and require a degree of prior knowledge of the field which make it difficult to recommend the book as an introductory volume for students. It should be added that the author has provided excellent bibliographies for each section of the argument.

Harry G. Johnson

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Laissez Faire and the General-Welfare State, A Study of Conflict in American Thought, 1865–1901. By Sidney Fine. (Ann Arbor: University of Michigan Press. 1956. Pp. x, 468. $7.50.)

This well-written and comprehensive study endeavors to draw together in a balanced presentation the main strands of public opinion, judicial interpretation, and legislative and administrative action on the subject of the role of the state in economic life. The author, who is an historian by profession, set himself the task of stating as completely as possible the philosophy current in various professions and walks of life during the latter half of the nineteenth century both favorable and unfavorable to the policy of *laissez faire*, and of tracing the reflection of this thought in actual policy. He opens with a good introductory survey of the development of American thought from 1763 to 1865, the time when *laissez-faire* thought had its greatest vogue. The central focus of the work, however, is on the period between 1865 and 1901, during which time American opinion and policy underwent a very great change away from *laissez faire*. Throughout, the attention is very heavily placed on conceptual systems, and only lightly on the political background and economic effects of public policies.

To Mr. Fine, *laissez faire* is the doctrine of the negative state. He does recognize, however, that in theory, and especially in practice, this doctrine was compatible with a good deal of government promotion of economic affairs. He uses the term *laissez faire* in a broad sense rather than in the more limited one in which it appears frequently in the eighteenth century as a public policy designed to facilitate the more effective operation and clearing of markets. To him, therefore, *laissez faire* means primarily social and economic Darwinism, and it is no accident that he leads off with a presentation of the views of Herbert Spencer, the man who, in his opinion, most influenced American thought in the mid-nineteenth century.

The first main section of the work is devoted to a statement of the philosophical foundations of *laissez faire* in America and to the elucidation of policy in the light thereof. He gives excellent brief summaries of the views of such economists as Francis Bowen, David A. Wells, Amasa Walker, Edward Atkinson, Horace White, J. L. Laughlin, A. T. Hadley, and William G. Sumner. On the whole these philosophical outlines are well done and present a good review of the opinions of professional economists on public questions at the time. That the writer regards these men as somewhat misguided is made evident by such comment as "the bankruptcy of the laissez faire position," which he uses in discussing attitudes toward unemployment (p. 62). After dealing with the theoreticians, he turns to the philosophy of the business man as indicated by speeches, letters, and essays, but here the material is much less satisfactory. Andrew Carnegie appears as the chief figure, though possibly he is not the most typical. In this section one might well question the writer's inclusion of the struggle over the monetary standards as part of the general controversy regarding *laissez faire*. It seems to be forcing matters to regard the gold standard advocates as being primarily of the *laissez-faire* camp and the greenbackers and silver interests as representing the welfare state. To this reviewer, the monetary debate seems to have been primarily a question of technical monetary management with overtones of pressures on the part of those who would gain or lose from a changed value of the dollar. The author concludes this first section by extracts from the writings of prominent Protestant clergymen and by a review of the instances in which judges by judicial interpretation wove *laissez-faire* philosophy into the law of the land. He reaches the not surprising conclusion that both the Protestant clergy and the judiciary strongly supported *laissez faire* during its period of dominance.

The larger part of the study, 231 pages, is devoted to the subsequent attack on *laissez faire* and to the rise of concepts of social control which he regards as foundation stones of the welfare state. He starts with an account of the rise of the social gospel, primarily in the Protestant churches. Of greatest interest to economists, however, is the long chapter on "The New Political Economy." The rise of this new school he attributes mainly to the influence of the German historical economists, which reached the United States through such men as Richard T. Ely, Henry C. Adams, E. J. James, Simon M. Patten, J. B. Clark, E. R. A. Seligman, and R. Mayo-Smith. Economists may well be flattered that an historian should regard the views

of some of their number as of such great importance in the history of American thought. He gives very good brief summaries of the basis of the dissent by these writers from the classical position and of their reformist views on questions of economic policy.

Members of the American Economic Association will undoubtedly also be interested to learn that their organization was founded in 1885 as a protest against *laissez faire*, and that the founders expected that the body would take a position on public issues. This view did not long prevail, however, and he notes that about 1888 this concept of the role of the Association was abandoned in favor of that of a nonpartisan professional society. Fine concludes that the new school of reformist economists contributed importantly to welfare-state philosophy by focusing attention on measures to raise the level of consumption, by emphasizing education, health and general well-being as objectives of policy, by urging national planning, especially in connection with natural resources, and by providing a rationale for the regulation of both trusts and natural monopolies.

He follows this account of the economists' opinions with a much briefer review of the ideas of leading sociologists, political scientists, philosophists, reformers, labor leaders and socialists. There is a long and interesting parade of sketches which includes such names as Lester Ward, E. A. Ross, William James, John Dewey, and Henry George. It does, however, seem very strange that the writer does not pay more attention to responsible business opinion during this period in which the rise of large-scale business was a major phenomenon. It is by no means evident that this opinion was all for *laissez faire* and social Darwinism. Indeed, one might expect that the business class would play a large role in influencing thought and policy. Nevertheless in this long section dealing at times with quite obscure reformers there is no substantial attempt made to survey the views of business leadership. One is therefore left with the impression that the reforms were carried out primarily as the result of the writings and personal influence of a small number of academicians and popular agitators. This is hardly the full story, and it seems unlikely that the writer intended it to be such.

On the whole, however, these omissions and the criticisms that might be made seem to be quite minor. This work deserves careful study by economists in general and especially by those interested in economic history and in the history of economic thought.

John G. B. Hutchins

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Méthode scientifique et science économique. Vol. II, *Problèmes actuels de l'analyse économique: ses approches fondamentales.* By André Marchal. (Paris: Librairie de Médicis. 1955. Pp. 314.)

Any review of this book is made difficult by the fact that it represents only the second volume of an ambitious, almost encyclopedic, effort by André Marchal, professor of political economy at the School of Law of the University of Paris (not to be confused with Jean Marchal). As a result, the title of the second volume is somewhat misleading because it is less con-

cerned with methodology than with systematology, although the former is by no means absent.

He is frank in admitting that he is trying to develop a theory "for interventionist, or *dirigiste* economic policies, now followed by all the great nations," thereby divorcing himself sharply from classical economics. He criticizes former (particularly French) theories for being too abstract, too hypothetical, too deductive, and above all microcosmic and static. "Reality knows no equilibrium, only disequilibria." Much of his study is devoted to a consideration of macroeconomics, both global and sectoral, and of dynamics in its two aspects: as a method and as a phenomenon. Underlying it is another fundamental conception, namely the replacement of the individual individual by the social individual and the resulting sociologization of economics, or perhaps the replacement of certain assumptions of individual psychology by those of social psychology. Instead of a *homo oeconomicus* he sees primarily social groups, each exhibiting a diverse form of economics behavior. He accepts the term *comportement social*, coined by the other Marchal, as one of the cornerstones of his approach.

All this is in the best French tradition, clear, logical and truly monumental, although not entirely convincing when it comes to the critical points of his mental architecture, such as the transition from and connections between microdecisions and macroquantities. He recognizes the preliminary and inconclusive character of his system in his conclusions. Taking older theories to task for producing universal and perpetually valid schemes, but schemes devoid of realistic content, he advocates "spatial and sociological differentiation" and believes general theories will have to be preceded by studies of specific societies and their segments. He finally tests, and in the last analysis rejects as universally valid, the schemes of Walras-Pareto, Marshall and Keynes. The first because it assumes an universe of micro-unities and of equals, as well as the neglect of monetary factors, Marshall because of his preoccupation with micro-equilibria. His comes closest to Keynes, but rejects the oversimplifications to which his approach frequently leads, questions its applicability to full-employment societies and more particularly its lack of real dynamism. While doubting the explicative value of Keynesianism, he pays tribute to it as being "one of the first-if not the first-general and coherent theory of planned economy (*économie dirigée*)." His own preference (p. 291) is for a scheme half-way between the Walraso-Paretian and the Keynesian approach—a theory not yet conceived either by Marchal himself or by others. Thus the reader is left somewhat suspended in midair after having followed his reasoning in all its intricacies.

Perhaps the most suggestive chapter is his search for *mobiles*, *i.e.*, dynamic factors causing changes in social systems and transitions from one economic system to another. Here too his approach is essentially empirical and eclectic. He concludes that the tendency of social as well as physical sciences is away from determinism towards "possibilism" or "probabilism." He finds that even among Marxists (he quotes Engels, Labriola, Plekhanov) pluralism and probabilism are gaining as against monism and determinism. His empirical approach leads him to the finding that the capitalist system

is compatible with several different kinds of political and juridical structures, with equality as well as extreme inequality of income, even with various types of "mental structures." As a matter of fact he comes pretty close to Schumpeter, although for different reasons, in stating that "not only is capitalism compatible with different mental structures . . . but it requires in its midst groups moved by other forces (*mobiles*) than the capitalist force," such as the civil servant, the soldier, the judge, the priest, the artist and above all the scientist. He tentatively states that the same principle may apply to socialist societies, all of whom tolerate lesser or major departures from the socialist directive and "mental structure."

In a similar context he believes that both capitalism and socialism seem to be evolving neither towards classless societies nor towards increasingly rigid and antagonistic two-class societies, but towards a variety of three-class societies, in which at a higher stage of development the new middle class tends to push back both capitalist and proletarian. He cites Sweden and the United States as glaring examples of societies where the notion of "social mosaic" has replaced the notion of a social pyramid. Having just returned from the Soviet Union the reviewer hesitates to accept Marchal's notion that in that country there are two privileged classes: the high officialdom and the *kolkhozniki*. One might just as well feel that the latter are definitely underprivileged, that the lightening of government pressures is only temporary, and that a new anti-*kolkhoz* offensive is underway in the colossal *sovkhozes* now being created in the vast spaces of Kazakhstan.

Marchal's work is based on a thorough and comprehensive knowledge of French, English, American and Swedish thought and probably represents one of the best reviews and reformulations in the field. The Swedish, and above all the work of J. Akerman, comes closest to Marchal's own predilections. Marchal's trilogy seems to indicate that France has thrown off a certain traditionalism which hampered its social scientists since the last war and that it may return to its traditional role of pathbreaker and renovator.

FRANK MUNK

Reed College

Wirtschaftswachstum und Gleichgewicht. By WILLY KRAUS. (Frankfurt am Main: Fritz Knapp Verlag. 1955. Pp. 297. DM 19,60.)

This volume is of a kind rarely published in the United States or Britain. The author does not offer any distinct contribution of his own, but he does give us an accurate and up-to-date account of the major contributions to the theory of growth (Cassel, Harrod, and Domar) and the theory of the business cycle (Wicksell, Hayek, Keynes, Hansen and others). Parts I and II of the book are devoted to such an account. Moreover, in Part III the author reviews the attempts toward a synthesis of the two fields (Frisch, Metzler, Samuelson, and Hicks). In Part IV, Kraus offers his own evaluation of the relative merits of what he calls the oscillation-model approach and the Wicksellian approach.

Of these two alternatives, the former, as exemplified by Hicks' *A Contribution to the Theory of the Trade Cycle*, is long on substance but short on

generality. The Wicksellian approach is very general but rather empty as long as we are not told exactly what hides behind the terms "money rate" and "natural rate." The compromise between substance and generality will always be with us. Either we are quite unspecific, not indicating the exact number of our variables, let alone the exact relationships between them, with the result that we get generality but are exposed to the criticism that most of the work remains to be done. Or alternatively we commit ourselves to specific hypotheses, rigorously expressed, and as a result get operationally significant models with plenty of substance, but this time are exposed to the criticism that we deal with only part of the problem or with only a very special case.

By and large, economic theory is moving swiftly in the direction of more substance and less generality. Major advances like linear programming in the theory of the firm or input-output models of general equilibrium exemplify this trend. In Kraus' field, the trend is visible in the mathematical oscillation models of the Frisch, Metzler, Samuelson or Hicks variety. Such models are ingenious, Kraus admits, and they are operationally significant: Express the behavior hypotheses and the parameters in the form of difference equations, find the roots of those difference equations, and you know the properties of the time path of the system without having to trace that time path step by step.

Yet Kraus rejects such models in favor of what he calls the Wicksellian approach. The oscillation models are rejected on the grounds that they ignore money and banking, psychology, innovations, and several other things. Here, the Wicksellian theory is found to be superior, for behind the "natural rate" we find expectations, technological change, quantitative as well as qualitative growth, etc. And behind the "money rate" we find the entire structure of interest rates, standards of credit-worthiness as well as all the institutional characteristics of the banking system. Thus everything has been taken into account!

Or has it? Kraus seems to be perfectly happy with a verbal presentation mentioning everything. But it is one thing to say that linear difference equations in a few variables with a floor and a ceiling thrown in are inadequate, quite another to be content with a vague verbal enumeration of things. Richard Goodwin, in his contribution to the essays in honor of Alvin Hansen, aptly defended his use of linear relationships by saying: "Otherwise in most cases a mathematical, and *a fortiori* a verbal, analysis of this type of problem is impossible." In its ability to keep track of the timing of events, verbal reasoning is hopelessly inferior to difference equations. It would indeed be amazing if verbal reasoning should suddenly do better as the number of things to keep track of were increased or the relationships between them were to become more complicated.

Even so, one cannot but admire the fairness and accuracy with which Kraus has described the present state of affairs in the theory of growth and fluctuations.

HANS BREMS

University of Illinois

Die Periodenanalyse als Theorie der volkswirtschaftlichen Dynamik. By ERICH HOPPMANN. Volkswirtschaftliche Schriften 20. (Berlin: Duncker & Humblot. 1956. Pp. 225. DM 15,00.)

For this work, "Period Analysis as a Theory of Macroeconomic Dynamics" is a misnomer. What the author intends is something like a philosophical critique of the methodological and epistemological foundations of quantitative economics.

The bulk of the first part is concerned with the simplest aspects of the subject-matter treated in Chapter 9 of W. J. Baumol's *Economic Dynamics*. There is an example of a recursive system on page 15, but the author's very first algebraic operation (a replacement) comes out wrong; $2p^2(t-1)$ is *not* equal to $2p(t)p(t-1)$.

The next part, about the "Presuppositions of Period Analysis" and, especially, "The Basic Elements (Epistemic Means) of Period Analysis," begins with a discussion of So-Being and There-Being. Some of it is meaningful but irrelevant, some of it relevant but false. The author is particularly concerned with philosophical problems pertaining to time. He feels that " 'Periodizing' in the sense of period analysis, whereby macroeconomic exchange relations are supposed to be purely formally associated with the attribute time interval, is erroneous" (p. 39), but we never learn how this blunder could be rectified.

The epistemic path (*Erkenntnisweg*) of period analysis is the next topic. There are real lags and computed lags. "Immediately really given" are only the real lags (p. 47). If the reduction of computed lags to real lags should prove impossible, then "the computed lag would be a pure So-Being, *i.e.*, one that is engendered by thinking and exists only in consciousness. Inferences therefrom would not have validity for the real reality" (p. 47).

The section on "The Theoretical Sequences as Explanation of the Temporal Connections in Economic Event Processes" makes the point that "lags are predominantly—although with gradual differences—of heterogeneous duration" (p. 121). This causes such trouble for the fixation of a unit period that "the individual recursive sequence as deduction of temporal relatednesses has no real validity any more" (p. 139).

Finally, in "The Epistemic Value of Econometric Period Analysis," the author expounds, he thinks, the principles of induction in econometrics. From page 186 on, we find a critique of the method of least squares. It is pointed out that the technique requires the computation of means. But, according to the author, the mean is just an "*ersatz* value . . . to which cannot be attributed any subject-matter significance with regard to the statistical time series" (p. 188). Why not? Because "Only if a normal distribution of the raw data is given, does the use of the arithmetic mean make sense, does it possess material adequacy" (p. 189). Later on, the author readily agrees with the econometricians that statistics cannot verify a hypothesis. However, econometricians believe, reports the author correctly, that they can at least *falsify* a hypothesis, can have criteria for rejecting it. But this is not true, either, says the author (and he does not by any means base his opinion on one of the subtler arguments of Alfred Ayer!). To sum up, "Econ-

ometric period analysis simply does not represent an 'explanation' " (p. 211).

Throughout the book there are copious references to the respectable professional literature. It is amazing what the author has read into it, or out of it, for that matter. For instance, Oskar N. Anderson is the most-quoted statistician, but one has to read only a few pages of *any* of Anderson's writings to see that the author's approach is as un-Andersonian as can be.

I cannot criticize the economics in the book because, apart from what is derived straight from other writers, or garbled, or obliquely alluded to, there is not any economics. The book does, however, contain some philosophy. And here I see the only danger coming from the book: It might make young economics students suspect that philosophers in general are frauds and that philosophy in general consists in abusing the language. It may also lead the adult reader to believe that the philosophers the author refers to most often—Joseph (not Josef) Geyser and Erich Becher of Munich—were blundering fuddy-duddies. But Geyser (*cf.*, *e.g.*, *Auf dem Kampffelde der Logik*, 1926, p. 31) had methodological views more sympathetic with the econometricians than with the author, and Becher put special emphasis on the circumstance "that the naive-realistic external-world image of practical life and even more so the external-world image of science have established their value and usefulness, for explaining and predicting what we perceive, in an excellent fashion and for a very wide range" (*Einführung in die Philosophie*, 1926, p. 139). Also, whatever the merit of these schools of thought, they did not inculcate the belief that philosophizing about a field of knowledge was possible without the relevant technical competence.

EBERHARD M. FELS

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John Maynard Keynes als Psychologe. By G. SCHMÖLDERS, R. SCHRÖDER, and H. ST. SEIDENFUS. (Berlin: Duncker & Humblot. 1956. Pp. 167. DM 14.-)

This book contains three essays. An introduction by Professor Schmölders, Director of the Institute for Financial Research at the University of Cologne, on the contributions of Keynes to research in economic behavior, is followed by a study of the second author on Keynes as a psychologist. An essay by the third author on the theory of expectations constitutes the final section. The book summarizes and criticizes past writings.

Schmölders sets the tone. He refers to the "unscientific and pre-scientific psychology" of Keynes and to his "reckless disregard of methods and results of scientific psychology." Nevertheless, he speaks with appreciation of Keynes' understanding of the "decisive role of human behavior in economics" and even of his knowledge of the nature of man, evidenced especially by Keynes' recognition of the power of habit. Similar are the observations of Schröder. After a detailed account of psychological statements found in Keynes' *General Theory*, he concludes that Keynes' statements are

derived from "subjective impressions" rather than from psychological studies, and are "too crude, too general, and too incomplete" really to clarify the problems raised.

These criticisms of Keynes' psychology are based to a large extent on the writings of American psychologists, sociologists, and economists, with which the authors acquaint their German readers. For readers familiar with the American literature, the quotations from the writings of the German anthropologist, Gehlen, and of the Swiss economist, Joehr, regarding a psychological business-cycle theory, are of particular interest.

Turning to the theoretical position underlying the criticism and formulated in the third essay, we find several interesting suggestions. Three planes of investigation of expectations are clearly differentiated. The "individual psychological plane," the "sociological plane," and the "institutional plane" all contribute to an understanding of expectations. The influence of groups and institutions on the formation of uniform expectations is pointed out. Unfortunately, there is no discussion of the relation of changes in the expectations of individuals to changes in the expectations of large groups and, therefore, of the relations between the micro- and the macroeconomic analysis of expectations.

Sometimes it has been assumed that German economic thinking tends to be either formal-conceptual or historical. In these German treatises, however, specific problems of economic behavior are viewed as the central problems of economics. Yet the authors do not proceed far enough. They do not seem to appreciate the need for and the possibilities of empirical research on economic motives, attitudes, and expectations. For instance, frequent lengthy quotations from this reviewer's writings consist almost exclusively of theoretical conclusions and do not acquaint the reader with any empirical studies from which those conclusions were derived or through which hypotheses were tested.

Needless to say, critical summaries of past attempts toward an understanding of the role of psychological factors in economic behavior are useful. But what is most needed at present, in the opinion of this reviewer, are studies about the ways in which expectations influence the decisions by consumers and businessmen on spending, saving, investing, or price-setting under varying conditions. Such studies need to be carried out in several countries, and it would be most valuable if it were possible to compare an analysis of German economic behavior with that of American economic behavior. The reviewer finished reading the book in the hope that it represents an introduction to future empirical studies. He trusts that the authors, after having convinced themselves and their readers of the need for psychological orientation in economic research, will proceed to reformulate their categories and models into testable hypotheses, and take steps to test these hypotheses.

George Katona

University of Michigan

Adam Smith and the Scotland of his Day. By C. R. FAY. (New York: Cambridge University Press. 1956. Pp. vii, 174. $4.75.)

This small volume of eleven chapters, one of the Social and Economic Studies sponsored by the University of Glasgow, is a study of Adam Smith and the Scotland in which he lived and wrote. That each influenced the other is accepted knowledge by students of Smith. Professor Fay, who is himself an economic historian, underscores this fact by drawing upon economic history and by giving especial attention to the influence of certain prominent countrymen of Smith and other notable Europeans of his day on literature, science, art, law, and politics as well as economics.

In the biographical part of the book the author follows closely the works of Rae, Stewart, Alexander Carlyle and W. R. Scott to which he adds interesting and significant information gained from a re-examination of materials and from new evidence. He takes one through the familiar stages in Smith's life as a youth in Kirkcaldy, in Glasgow where he was a student and later a professor, and in the cultural center of Edinburgh where much of his best work was done. The time spent on the Continent as tutor of a young Scottish duke also gave him an insight into Physiocracy. The expansion of trade and commerce which was going on at every hand provided the practical materials which made his familiar work far superior to anything yet done. Fay's emphasis on the part played by Smith in developing political economy as a science is a significant aspect of this book.

The main contribution of the book to the folklore of Adam Smith is in the last five chapters in which Fay develops the role of certain individuals not only in the scheme of political affairs but in related areas. The influences of Adam Ferguson, John Millar, and William Blackstone on political economy and the law is emphasized. Certain influential eighteenth-century persons such as Townshend, Wedderburn, Benjamin Franklin, Strahan the publisher, Edward Gibbon, a friend and contemporary who published the first volume of his book the same year as Smith's *Wealth of Nations*, and finally the leaders in Physiocracy, Quesnay and Turgot, are treated as shaping, in greater or less degree, Adam Smith's work. Of especial interest is the influence of Benjamin Franklin and the American Revolution. These glimpses, many of which one sees in the letters that passed between these various persons and Smith, will provide the reader with many clues and insights into factors that influenced his writings.

Viewed as a whole, the book adds important documentary materials to the great body of Smithlore, but the reader may be baffled at times in attempting to relate the various materials to each other. Nevertheless, the author has succeeded in highlighting the broad and significant factors that influenced Smith in writing the *Wealth of Nations*. The book ends with an appendix which discusses the controversial issue regarding the authenticity of the familiar Muir portrait of Adam Smith.

J. F. BELL

University of Illinois

National Income—Analysis by Sector Accounts. By A. J. VANDERMEULEN and D. C. VANDERMEULEN. (Englewood Cliffs: Prentice-Hall. 1956. Pp. xv, 555. $6.95.)

This book is much better than it looks. The authors have clearly put into it the experience of some years of teaching their subject, and they have produced a highly competent and painstaking piece of work. The publishers, however, have chosen to give the book an unprepossessing format, having the tentative air of a preliminary version of the real thing, and quite out of keeping with the quality of the contents. There is also a "teacher's manual" to suggest that anyone who would adopt the text could hardly be bright enough to do his own teaching. This "manual," however, is essentially an answer book containing solutions to the exercises in the text. Since there are roughly 150 of these exercises, many of them consisting of several parts, the answer book will certainly be useful.

The textbook is divided into two parts. The first 10 chapters of Part I introduce the sector accounts for households, business, and government, and develop appropriate functional relationships to yield a period analysis of the aggregative process. Three further chapters deal with comparative statics as an alternative technique, foreign transactions, and cyclical fluctuations. Part II is concerned with financial transactions, and consists of 5 chapters in which simple balance sheets are used for 4 sectors, banking now being treated as a separate category. The fifth and last chapter introduces price changes, and extends the analysis of earlier portions of the book.

The exposition is based on numerical examples throughout, and each chapter contains numerous additional exercises that not only test the student's understanding but also bring out significant points not made elsewhere. Although a rapid turning of the pages might give the impression that mathematical formulae have been overdone, closer inspection reveals nothing likely to frighten even the timid undergraduate. The authors assume no particular background beyond an introductory course in economics, and they build judiciously on what most students get from such a course rather than on what may be in it.

Owing to the form of the exposition, this book is not well suited to occasional or supplementary use. As a basic text, however, it is adaptable to a considerable range of possibilities. Students in their second year of economics should be able to follow the argument without undue difficulty and to work many of the exercises. On the other hand, instructors can easily assign exercises that will keep students with more background profitably employed.

The authors write with unusual clarity in a style unadorned by jokes, colloquialisms, or painful efforts at either. Students who find nothing to laugh at on a first reading will find nothing to complain of on a second or even a third. I do not claim to have worked through all the exercises, but substantial sampling indicates that they have been thoroughly tested in the authors' own teaching, and that they will accomplish what they should. Footnotes have been kept to a minimum, and there are no lists of additional readings.

I have found no serious errors anywhere in the book, and should be ashamed to reproduce the few minor ones I have noticed. Altogether, this is an excellent textbook, and its appearance reflects its real quality less accurately than does its price. Any instructor teaching a course in national income analysis would do well to give this book serious consideration.

RICHARD V. CLEMENCE

Wellesley College

National-Income Analysis and Forecasting. By ROBERT M. BIGGS. (New York: W. W. Norton & Co. 1956. Pp. xxi, 610. $5.95.)

The intent of the author has been to design this text for "the initial course in the area of prosperity and depression." In general, Professor Biggs' treatment of the basic structure of ideas in the area of macroeconomics is quite elementary. In all fairness, much of the elementary character of the analysis derives from the very lucid style of exposition, the complete absence of mathematics, and the excellent organization of the book.

After a conventional discussion of the purposes of national income analysis, he proceeds to Part I concerning the nature and measurement of economic activity. From the standpoint of acquainting the student with the sources of income and production the treatment is quite adequate. The discussion of social accounting is not as detailed as that of Richard and Nancy Ruggles,[1] but if the emphasis of a course is on analysis rather than measurement the text is satisfactory. The only major criticism of this part of the text that might be made is that the treatment of capital theory and the productive process and the distinction between income and wealth is excessively long and too elementary for students who have had a year of elementary economics.

Part II deals with income fluctuations and contains the major portion of the analytical work. The first chapter presents a simplified model of income fluctuation which is based essentially on a combination of a Keynesian definition of autonomous investment and a Robertsonian definition of lagged saving. Fluctuation occurs because the rate of autonomous investment changes and the economy moves to a new equilibrium position via the Keynesian multiplier route. This model implicitly assumes that producers' expectations are coincident with demand or are solely dependent upon the events of the last period. Even in the following chapter dealing with income fluctuations in a complex economy it is never suggested that producers' plans might differ from either consumers' or investors' plans. The only significant deviation is still between consumers' (savers') plans and investors' plans. While the author frankly states that his picture of the economy is simplified, it would seem to be more realistic and equally clear to explain the central pattern of income fluctuations by differences between the plans of producers and buyers, and the resulting failure of realization of plans by all groups.

[1] Richard and Nancy D. Ruggles, *National Income Accounts and Income Analysis*, 2nd ed. (New York, 1956).

Following the two chapters treating the mechanism of income fluctuation are three chapters on the determinants of these fluctuations; one on consumer behavior with respect to consumption and saving; one on investment, and one on other factors such as housing, government expenditures and taxation and foreign trade.

The chapter on investment contains a discussion of widening and deepening of capital, the terms being defined as a constant ratio of capital to output and an increasing ratio respectively. However, since most investment both expands output capacity and reduces the cost per unit of output or sales dollar, the distinction between widening and deepening seems arbitrary, confusing, and unnecessary to the analysis.

The chapters on consumption and investment both contain an analysis of expectations, and in each case it is argued that expectations are an independent force determining income only in those cases where the expectations are wrong. There is, however, the possibility that the optimism might be great enough to create sufficient investment and hence income to justify the investment. Optimism would of course have to grow continuously, *vide* R. F. Harrod, Domar, Fellner and others. Biggs would have to say in this case that the optimism was simply justified by reality. But this way of putting the matter would ignore the causative role of expectations in the economic process.

There is only footnote reference to the concept of marginal efficiency of capital, and this is dismissed as being relatively unimportant to the determination of investment on the grounds that profit margins are unimportant to businessmen. It is not clear why this concept is rejected, since Biggs does not suggest that businessmen do not invest without expecting a profitable return on the investment. Moreover, since profit margins, according him, are unimportant to investment so are interest rates with which they are compared. Nor is the availability of funds of importance, since there are so many sources of funds. While in my opinion the chapter on consumer behavior is the best in the text, the chapter on investment is the least satisfactory.

This part of the text concludes with a chapter on forecasting. The author prefers a national budget approach, suggesting the forecasting of various components of gross national product independently and then aggregating them with due attention to the interrelationships between the components. The student is made aware of the difficulties involved, the availability of data, and some of the inadequacies of data.

Part III is concerned with policies for periods enjoying high levels of income. The author is disparaging of individual business or labor policies as well as government policies designed to create an altered environment for the private sector. He is also quite skeptical of monetary policies and, properly so, of built-in stabilizers. In this regard he belongs to the camp of those who feel that deliberate, discretionary fiscal policies are the only solution to maintenance of prosperity.

PHILIP W. CARTWRIGHT

University of Washington

Economic History; Economic Development; National Economies

Soviet Industrial Production, 1928–1951. By DONALD R. HODGMAN. (Cambridge: Harvard University Press. 1954.* Pp. xix, 241. $5.00)

The index of Soviet industrial production presented in this study is apparently a more detailed and carefully weighted index than has thus far been constructed by students outside the USSR. Interest in an independent index of Soviet industrial growth has been strong for many years. In the preface to this study, made under the auspices of the Russian Research Center at Harvard, Alexander Gerschenkron writes: "It had been recognized for some time . . . that the official Soviet index of industrial output at 1926–27 prices contained a gross upward bias which made it a very unreliable gauge of Soviet industrial growth."

Hodgman's index, covering the 1928–1951 period, and brought forward to 1953 after completion of the study, shows substantially different results from the official Soviet index. Indexes are shown for 1928 through 1937; 1940 and 1941; and 1945 through 1953. Differences from the official index are particularly large for the 1928–1937 period. Over this period, the official Soviet index shows a growth of 450 per cent, while Hodgman's index rises 270 per cent. Hodgman's more modest measure of Soviet industrial expansion is impressive enough, implying an average rate of growth of 15 per cent per annum.

In the postwar period, from 1946 to 1953, the trend in Hodgman's index is much more like the official one, rising 192 per cent compared to 223 for the Soviet index. In the years 1950 to 1953, Hodgman's index rises 38 per cent compared with 44 per cent for the official index, indicating roughly a per annum rate of 12 per cent. In the United States, in the postwar period, industrial production has been rising at an average rate of 4 to 5 per cent per year.

Hodgman's chief contribution is in the index for the 1928–1937 period, when the coverage available to him is relatively comprehensive and the quality of the underlying series comparatively good. For this period, 137 physical product series are used covering 54 per cent of large-scale industry. Raw materials are well covered in the index, but Hodgman also has representation for a number of finished products, mainly machinery items.

The substantial departure of his index from the official index for the 1928–1937 period tends to confirm the broad findings of some earlier observers whose appraisals of Soviet industrial performance were based on much more primitive calculations. The problem of correcting for overstatement in the Soviet index contrasts with the frequent need to overcome an apparently inherent downward bias in production indexes for this country and for some abroad.

Hodgman's major task was the construction of a detailed set of weights approximating a value-added concept. These weights apparently underlie

* *Editor's note:* Neither the *Review* nor the author of this review is responsible for its belated appearance.

most of the difference from the official Soviet index. Weights in the official index were based on gross values instead of value-added. For the period prior to 1951, the prices used for weights resulted in considerable overstatement of Soviet expansion. Prices were based partly on the pre-industrialization 1926–27 period which tended to overvalue products about to undergo rapid expansion in output. In addition, prices of new products were drawn from their year of introduction and during a period of considerable inflation.

Weights in Hodgman's index are based on payrolls including payroll taxes for the year 1934. The use of payrolls to approximate value-added tends to overweight industries where labor input is high relative to total value-added, and of course underweight the others. According to U. S. data on wages and salaries in relation to value-added and to national income, industries with a relatively low labor input include chemicals, petroleum refining, and electric utilities. In the 1928–1937 period, output of Soviet electric power stations and the chemicals industry grew far more rapidly than the remainder of large-scale industry, according to Hodgman's index. Petroleum refining showed a smaller increase than the total. By contrast, the textiles and leather industries, which grew much more slowly than other industries in the Soviet Union, have a high labor input in relation to total value added. The combination of overweighting the slow-growing industries and underweighting the fast-growing ones imparts a downward bias to the total index. There are, however, many offsets, and the net effect on the total index stemming from the use of payroll weights is difficult to determine. Moreover it is not certain that United States data on the relation of payrolls to value-added are applicable to Soviet industry.

The coverage of Hodgman's index is confined to so-called "large-scale industry." Generally speaking this segment covers factories, mines, electric power stations, and fishing industries. Aside from fishing, the area covered is broadly equivalent to manufacturing, mining and utilities, for which indexes are available in the United States, Canada, Great Britain, and other countries. Small-scale industry apparently refers mainly to small flour mills and bakeries, but also to tailors, shoemakers, smithies, and the like, which actually produced a sizable volume of goods in the earlier part of the 1928–1937 period. The share in total output of small-scale industry fell rapidly during the whole period.

After 1937 the Soviet government sharply curtailed the publication of production statistics. As a result the coverage of Hodgman's index is cut more than in half, and its quality becomes quite thin for the later period. The reader is warned emphatically on page 81 as follows: " . . . the revised index must be considered provisional for the post-1937 period until such time as more ready access to detailed production data provides an opportunity to verify and supplement data presently available."

The reliability of the indexes for the earlier period, however, is also heavily qualified by Hodgman because of the many adjustments involved in the calculation of weights, in the construction of continuous series, but most important in the correction for incomplete coverage. This reviewer

cannot, of course, judge the reliability of the very large adjustment for the unrepresented industries. Approximately two-thirds of all metal-working industries are missing and are assumed to have the same quantity changes as the represented one-third. For all industries other than metal-working, approximately one-third are not directly represented and these are assumed to move with the directly represented industries in the nonmetal-working area. The adjusted index rises somewhat more than the unadjusted, because the weight of the fast-growing machinery index is increased while the weight of the relatively slower-growing nonmetal-working industries is reduced. The calculations are carefully and well documented, so that a reader knowing more about Soviet industry than this reviewer, may appraise the numerous assumptions involved.

Hodgman has put together an admittedly sketchy but useful index of output of industrial consumer goods, which brings out clearly the far more rapid prewar growth in the nonconsumer sector of the economy. From 1928 to 1937, Hodgman's index for consumer goods rises 137 per cent compared with a rise in the total index including consumer goods of 270 per cent.

In the postwar period, at least from 1946 through 1951, growth shown in the consumer-goods index tends to parallel that for the rest of the economy. This growth from 1946 in consumer goods was from greatly depressed levels. In this later period, owing to lack of data, the consumer-goods measure is based on only a few items, and doesn't include meat, milk, bread, shoes, or any items of household equipment. It is interesting to note that Hodgman's consumer-goods index shows more rise from 1946 to 1950 than the official Soviet index for consumer goods.

The index of machinery output is the most important composite in Hodgman's index. Before adjustment for coverage in the metal-working group of industries mentioned above, this index is 19 per cent of the total in 1934. After adjustment it is 32 per cent. Machinery is defined more widely than in the United States to include transportation equipment. Hodgman compares his machinery index with a more detailed special index for machinery constructed by Gerschenkron.

The differences between the two machinery indexes are rather large and for the period as a whole Hodgman's index rises much more than Gerschenkron's. The machinery index is a rough clue to the relatively rapid rate of growth of the nonconsumer sector of the Soviet economy. From 1928 to 1937, Hodgman's machinery-output index shows a rise of 525 per cent or nearly four times the increase shown in his index for consumer goods. Gerschenkron's index shows a rise in machinery output of 425 per cent.

There is a strong suggestion that Hodgman's weights may be preferred but that Gerschenkron's index has much better coverage. It is not made clear why Hodgman did not use the more detailed series developed by Gerschenkron for so important an area of the total index. Apparently he felt that superior coverage would be offset by dubious weight calculations.

It would seem to this reviewer that, generally speaking, information on important series ought not to be discarded because of lack of good data on weights. Approximate data on weights might profitably be employed. The

tendency to "lose" series data is apparent elsewhere in Hodgman's index when physical product data for the important lumbering industry are disregarded because of a lack of definite information on weights. Hodgman does, however, show as a convenience to the reader the physical product data for the lumbering industry.

A short chapter devoted to comparing rates of growth in the Soviet Union with those in other countries should be of interest to the growing number of students of economic development. While the present rates of growth in the Soviet Union are indeed very high, Hodgman anticipates some slowing down as the economy becomes more mature.

Hodgman has written a fine book on a difficult subject in economic measurement, involving more than the usual complement of data problems and in an area where broad margins of error seem unavoidable. He has undoubtedly made a big step forward in his index for the 1928–1937 period. This book, in general, is noteworthy for its full documentation of sources and description of procedures. Not many economists are willing to face the task of detailed measurement, and for those who do, and do it well, special commendation seems in order.

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* The views expressed in this review are those of the author and do not necessarily reflect those of the Board.

Mainsprings of the German Revival. By H. C. WALLICH. (New Haven: Yale University Press. 1955. Pp. xi, 401. $4.50.)

Professor Wallich's book on the German economic recovery from the middle of 1948, or the date of the currency reform, up to the end of 1954 is the first comprehensive study available in any language of this remarkable episode. It is therefore not surprising that the book was immediately translated into German, thus offering to the Germans the views of a foreign observer on their own achievements.

Wallich develops first a philosophy of economic growth by contrasting two types of economic development: one type consisting in the "production oriented" growth in which the entrepreneur and his autonomous investments play the central role, and the other in the "consumption oriented" growth, illustrated by the welfare state of the British kind. The German case belongs, according to the author, to the first category. One may doubt whether this division is a fruitful one, but, as the author's investigation of the German case is in no way affected by it, it does not detract from the value of the book even for the reader who disagrees with the distinction.

After describing the extent of the German recovery by reference to the increase in national income, its sources and its utilization, the author takes up monetary and fiscal policy, the free-market policy followed by Erhard (and the exceptions to it), investment and the sources of the funds from which it was fed, the balance of payments, the progress towards converti-

bility of the D-Mark, population movements, labor problems, and some topics of a more sociological and political character.

The picture that emerges is one of a swiftly expanding economy, in which investments and exports ran ahead faster than consumption. The expansion was made possible by the absorption of the unemployed and the influx of workers from the east, as well as by a rapid rise in productivity per head. Investments could be largely financed out of industrial profits which owed their existence partly to the restraint which labor exercised in its wage demands, and partly also to a tax system which favored investment (as well as savings). The long-term capital market was extremely narrow, largely as a result of the fixing of interest rates at 5 per cent on mortgage bonds and 6½ per cent on industrial bonds. Only late in 1952 were interest rates freed from controls. The dearth of capital led entrepreneurs to finance even long-term projects with bank credit which, in view of the limited dimensions of the securities market, could not easily be consolidated subsequently through issues on that market. However, the unprecedented expansion of bank credit did not have inflationary effects since it was in good part matched by an expansion of savings- and time-deposits.

In the field of monetary policy the central bank was, the author relates, urged by representatives of the Economic Cooperation Administration "by some elements within the British military government," by the German Social Democrats, and by the trade unions, to follow an aggressive full-employment policy *via* credit expansion. The West German government "leaned towards the conservative view" which was shared by the central bank; the latter regarded the maintenance of the stability of the purchasing power of the D-Mark as its first duty. The result was an "orthodox" monetary policy. Careful scrutiny of this policy brings the author to the conclusion that, on the whole, the policy of the central bank was the correct one. Indeed, as the unemployment in Germany was "structural" in character, the Keynesian policy of general credit expansion would not have been a cure for it.

The author rightly refrains from attributing the German recovery to a single cause; and he does not attempt, either, to weight the contributing factors according to their relative importance. This could, in any case, only be done "impressionistically." Nonetheless, it might seem to many observers, including the present reviewer, that priority ought to be assigned to the restraint exercised by labor in its wage demands. This factor was in large part responsible for the high profits and therefore for the high level of investment; it helped to make German industry competitive in the world market; and it facilitated the task of the central bank in keeping the purchasing power of money stable and thus satisfying what was a prerequisite for the revival of personal savings. Nor is this factor irrelevant, undoubtedly, to what is perhaps the most remarkable achievement of all during the period of six years which Wallich covers, namely, the absorption by the productive process of an increase in the total employed labor force of well over 20 per cent, and in the industrial labor force taken alone of some 35 per cent.

FRIEDRICH A. LUTZ

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Statistical Methods; Econometrics; Social Accounting

The Structural Interdependence of the Economy. Proceedings of an international conference on input-output analysis. Edited by TIBOR BARNA. (New York: John Wiley. Milan: A. Giuffrè, for Faculty of Economics, University of Pisa. 1956. Pp. x, 429. $7.50.)

The papers included in this book were presented at an international conference in Varenna, Italy in 1954. The purpose of this conference, with participants from Italy and ten other countries, was twofold: Partly it was to inform Italian economists and statisticians on the latest trends of scientific thinking in the field of structural interdependence analysis and partly to provide opportunity for exchange of ideas, experience and information between experts in order to develop and improve the analytical tools for analyzing the structural interdependence of the economy. The book is characterized by this double purpose in that some papers are merely expository while others are highly technical. Even the contents of the latter have to a large extent been previously published elsewhere with the exception of those which describe country experience. The quality of the papers is also somewhat uneven.

Nevertheless, the volume represents a very handy and well-organized collection of papers which is to be welcomed as an addition to the already quite rich literature on input-output analysis, linear programming and activity analysis. One of its achievements is that it illuminates the relationships between these three fields and clarifies their respective merits. It is shown that these approaches do not compete, but supplement each other. Linear programming is normative and can be based on empirical data provided by either input-output research or activity analysis, although data on a national scale so far have been provided only by input-output research. When data can be obtained, it depends upon the purpose of analysis whether the input-output approach or the activity-analysis approach is more fruitful.

The book is organized in four parts. Important theoretical aspects of the three methods of structural interdependence analysis are dealt with in Part I. Part II looks upon input-output analysis from the accounting point of view including the problems of aggregation, and it is, *inter alia*, shown that a set of input-output tables or a system of national accounts in the customary form may be deduced from a general system of accounting. In Part III the experience of six European countries is described, and plans for prospective work in the respective countries are outlined. While papers on country experience frequently are rather dull and primarily descriptive, several of these papers present new ideas, and will therefore be valuable to those who themselves want to work empirically in this field. Part IV describes application of input-output analysis to problems of interregional or international trade, to the subject of terms of trade between industries of the same economy and to the problem of economic development. It also includes two papers on the least developed part of input-output analysis, viz. consumption.

Tibor Barna has written an extremely informative introduction where he

has surveyed and summarized the main points of the various authors. He correctly points out that the authors emphasize the elasticity of the input-output or the linear programming approach. The chairman of the Varenna Conference, Wassily Leontief, has written a prefatory note; the Italian Minister of Finance, Roberto Tremelloni, has written a foreword; and a paper by the late Giuseppe Bruguier-Pacini, to whom the volume is dedicated, on "The Changed Tasks of a Faculty of Economics" is also included.

Together with Leontief's books and the volumes on input-output analysis and activity analysis edited by the National Bureau of Economic Research and Oskar Morgenstern, the papers from the Varenna Conference give a comprehensive presentation of structural interdependence analysis, which must be appreciated by all economists and statisticians interested in these problems.

PETTER JAKOB BJERVE

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Nasjonalregnskap: Teoretiske Prinsipper (National Accounts: Theoretical Principles). By ODD AUKRUST. Social-economic Studies, No. 4. (Oslo: Statistisk Sentralbyrå. 1955. Pp. 123. Kr. 3.00.)

In 1946, summing up the first ten years of intensive work on national accounts for various countries, Carl Shoup mentioned "a substantial amount of activity" in Norway. In the ensuing decade, the fruits of that activity have become evident. Odd Aukrust, now chief of the research department in the Norwegian Central Bureau of Statistics has made a major contribution in this field. He was in large part responsible for the earlier volume, *Nasjonalregnskap 1930–39 og 1946–51*, and has now written the promised companion volume on theoretical principles. It is important to emphasize, as the author does, that this work is primarily a discussion of certain theoretical principles that have a direct bearing on empirical research, rather than a general or comprehensive theory of national accounting.

This monograph was designed to serve three purposes. In addition to the purpose already mentioned, it is the fourth in a series of social-economic studies that present historical, theoretical and analytical reports on the Norwegian economy by the Central Bureau of Statistics. Combined with a part of the earlier volume mentioned above, this monograph has been accepted by the University of Oslo as Mr. Aukrust's doctoral dissertation. Just as the author points out the problems involved in constructing a single set of national accounts designed to meet more than a single purpose, so must one view this multipurpose volume, which in some sections briefly reviews recent thinking on certain aspects of national accounting and in others contributes to work already done.

According to the "Opening Remarks," when Aukrust began his work on national accounts for Norway, he was impressed with the need for a fully worked out theoretical system that was both logically consistent internally and combined simplicity of conception with abundance of detail. With considerable practical experience behind him, he has pursued this objective.

Chapter I contains a discussion of the purposes of national accounting. Chapter II concerns historical aspects of theoretical developments with special attention to the works of Frisch (the eco-circ system), Stone (the payments-flow approach) and Leontief (input-output analysis). From the works of these men, Aukrust derives the major components of his own approach. Explicitly, he rejects certain of their tenets and substitutes his own. The second chapter concludes with a section telling in what ways international work, especially that of the O.E.E.C., has influenced the development of Norwegian national accounts.

Chapter III deals with classification problems, contrasts institutional and functional approaches, and proposes an axiomatic solution which is described in general terms in the text and is presented in some detail in the appendix. Chapter IV, "The Problem of Valuation," restates the now familiar Norwegian preference for national aggregates in terms of market price as opposed to factor costs. The exercise in logic applied to valuation in one section of this chapter does not come to grips with the difficulties of this fundamental problem, but it seems clear that Aukrust did not attempt that task here. The chapter ends with a short section on measurements in constant prices over time.

In Chapter V, "The Observation Problem," Aukrust presents a standard accounting framework which can be used for each transactor or sector of the economy. Four double-entry accounts separate real and financial transactions, income, and a balancing account for changes in assets. Each account is devised to correspond to a definitional equation in the eco-circ system, and of the four, any three can be taken as independent equations. In this system there can be no overlapping of financial and real transactions, and a clear distinction is made between requited and unrequited transactions. The properties of a "fully articulated" and "centrally described" system are set forth and then evaluated in terms of practicality. The two final chapters relate the foregoing theoretical ideas to practices of assembling, classifying, evaluating and presenting the data of national accounts with special reference to the Norwegian experience.

In the appendix, the author has attempted to work out an axiomatic treatment of classification and valuation problems. To serious students of national accounting, this is likely to be the most interesting part of his monograph, but here many are likely to be stopped by the language barrier. That part of the English summary covering the appendix will only whet their appetites. No one is better qualified to remedy this situation than Aukrust.

JANET A. FISHER

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Size, Structure and Growth of the Economy of Jamaica—A National Economic Accounts Study. By ALFRED P. THORNE. (Kingston, Jamaica: Institute of Social and Economic Research, University College of the West Indies. 1956. Pp. 112.)

This study, undertaken at the request and with the cooperation of the government of Jamaica, achieves three results: (1) it gives a picture of the size, structure, and growth of the island's economy; (2) it lays the founda-

tions for continuing national economic accounting as a basis for the formulation of economic policies for the island; (3) it introduces refinements in national economic accounting which may be usefully applied also in other underdeveloped countries.

1. Professor Thorne's study is the first attempt to picture the Jamaican economy in a frame of national accounts. The sector accounts are for 1952, the last year for which figures were available at the time the inquiry was undertaken; but in addition some comparisons with earlier years as far back as 1938[1] show the trends of change and progress. Striking features of Jamaica's economy shown in the 1952 still picture are: (a) the smallness of the national income—£90 million or about $174 per capita, (b) the small amount (27 per cent) contributed to gross domestic product by agriculture, forestry, and mining in a country still "colonial" and "underdeveloped," (c) the large amount of investment—gross investment was 14.1 per cent of gross product, net investment about 9.3 per cent of gross product, compared with a figure for net capital formation of less than 5 per cent in most underdeveloped countries. But the author warns that capital consumption estimates are probably too low.

The moving picture obtained from comparison with estimates for earlier years reveals that between 1938 and 1952 gross domestic product rose from £18.6 million to £95 million and to an estimated £105 million in 1953—an increase of 465 per cent. This spectacular increase becomes less impressive when allowance is made for changes in prices and population. Per capita gross domestic product at constant (1950) prices rose from £52 in 1938 to £60 in 1952, or about 15½ per cent.

More remarkable are a decline of one-third in the percentage contribution of primary industries to gross domestic product, counterbalanced by a doubling of the percentage contribution of manufacturing and a 300 per cent increase in that of public utilities. This notable advance in industrial production upsets Benham's opinion of 1943 that high labor costs would preclude industrial development in Jamaica.

2. The principal purpose of the study, more important than that of presenting a national accounting picture of the Jamaican economy, is to lay the foundation for a system of continuous national economic accounting to help the government in formulating, testing, and currently revising its economic policies. Thorne suggests that accounts not only be kept continuously but that "forecast accounts," to be continuously checked against actual performance, should serve as guides to policy makers.

3. In setting up national economic accounts for Jamaica, Thorne introduces some noteworthy innovations: he deals with 11 sector accounts, as against 5 accounts used in the United States; he puts all export industries into a separate account instead of following the custom of lumping them with the "Rest of the World" account; he has a separate account also for public utilities in order to show the growth of this industry with its stra-

[1] Figures for some of these earlier years were obtained from F. C. Benham, *The National Income of Jamaica*, 1942 (Bridgetown, Barbados, 1943); Phyllis Deane, *The Measurement of Colonial Income* (1948) (Cambridge, England, 1948); and Central Bureau of Statistics, *National Income of Jamaica, 1943, 1946* (Kingston, Jamaica, 1948).

tegic importance for developing countries. The author then consolidates his 11 accounts into the system of 6 accounts recommended by the United Nations, but he improves upon the United Nations system by separately showing the value of subsistence consumption and gifts from abroad.

Thorne acknowledges the Keynesian character of his study, but he seems troubled, and rightly so, by the question of "how far the tools used in 'Western' countries can be serviceable in Jamaica." The fact is that underdeveloped countries desiring to raise levels of living through industrialization cannot significantly use either the economic analysis or the economic policies of advanced capitalistic nations; they cannot rely on monetary-fiscal policies or on private enterprise to achieve their goals.

Unemployment is a chronic disease of many underdeveloped countries, as it is a frequent acute disease of advanced capitalistic nations. In the latter countries fiscal policies designed to increase income and demand can be effective in putting idle men back to work in idle plants. To apply such policies in Jamaica would be useless. The ten per cent of the total population of Jamaica who are unemployed even in prosperous years cannot be put to work in idle plants because there are no idle plants. The first thing that must be done is to build the plants in which the idle could be employed. What is needed, as Thorne emphasizes, is capital formation.

But capital formation in underdeveloped countries, again, does not respond to the type of encouragement relied on in "Western" countries. It may be sufficient "for a democratic [Western] government to do such things as influence the rate of interest, change the system of taxation and incur deficits in order to influence the rate of . . . investment, and consequently the . . . rate of development." Stronger stimulants are needed in underdeveloped countries, where private enterprise has not been able or willing to undertake the investments needed to bring about industrialization. Success, where it has been achieved, was due largely to direct government intervention.

This is certainly true of Puerto Rico which is now emulated by the underdeveloped countries. If private enterprise had been relied on to bring industrialization to Puerto Rico, it would never have come. After all, private enterprise had its opportunity for hundreds of years under Spanish rule and for half a century under United States rule, yet Puerto Rico continued to be a poverty-ridden, capital-poor country until the Insular Government launched "Operation Bootstrap" and stepped in with plans and funds for investments too risky for private enterprise.

In Jamaica, too, capital accumulation and consequently greater employment opportunities and rising standards of living depend largely on direct government planning and direction. Private enterprise has not invested enough in the past and is not likely to invest enough in the future to assure the desired economic progress. Thorne's suggestion for a "development bank," presumably after the Puerto Rican model, indicates his awareness of the need for government action to promote investment.

Excessive emphasis on Keynesian concepts and policies in dealing with the problems of underdeveloped countries is perhaps inherent in the na-

tional income approach and not particularly a fault of Thorne's book. It would not be fair to criticize him for having chosen a national accounts approach for his study. After all, that was the kind of study he was commissioned to undertake. He has carried out his assignment with thoroughness and scholarliness and the product of his research, of obvious practical importance to Jamaica, is a significant contribution to the literature on national economic accounting.

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Economic Systems; Planning and Reform; Cooperation

Comparative Economic Development. By RALPH H. BLODGETT and DONALD L. KEMMERER. (New York: McGraw-Hill. 1956. Pp. vii, 557. $6.00.)

The title suggests a departure from the conventional textbook approach. "This book," the authors claim, "is not intended to be a text in economic history, nor is it intended to be a text in comparative economic systems. It is a combination of the two designed for use as an orientation type of course." Unfortunately, they did not succeed in combining the two approaches.

To say that the book is valuable, is to judge it by its lucidity, factual accuracy, and by the authors' remarkable skill in condensing the economic histories of four major industrialized countries to fit into an average-length textbook. These countries—United States, England, Germany, and Russia—were chosen, presumably, because each of them represents a distinct system. They are treated in four separate, strictly historical surveys. Each survey is divided into an equal number of chapters dealing with developments in various sectors (population, resources, agriculture, transportation, manufacturing, finance, labor, commerce).

The first three countries are judged generally by the familiar standard of "pure" capitalism (profit motive, freedom of enterprise, free competition, respect for private property). Though the United States has deviated considerably, has abandoned the gold standard, orthodoxy in monetary and fiscal policies, the balanced budget, etc., etc., and though politicians (the authors fear) tend to pervert the government's function as an economic stabilizer to their own "spend and elect" ends (p. 124), it still exemplifies "capitalism." England, on the other hand, a country which until recently had an undisputed claim to the title, is now in a state of "decadent capitalism" *i.e.*, the "welfare state," a deplorable state, indeed, which she brought upon herself by excessive controls and welfare schemes. Now, this is definitely unkind, particularly to the present government which is trying so valiantly to square its liberalization program with dollar gaps, military commitments, free consumer spending, inflation, etc.

The authors, apparently reluctant to drop National Socialism or Fascism as a distinct "system," by including Western Germany naturally found a niche for it. It is surprising how much textbook space is still devoted to a political regime which without constitutional restraints and with no respect

for human rights almost achieved its two objectives of stability and conquest by extending *already existing* controls and stabilization schemes, and by furthering cartelized integration. Still, businessmen "continued to own and operate their businesses and to be motivated by consideration of profit and loss" (p. 456). Nor were they deprived of "the customary capitalist incentives." Thus, basic institutions remained intact. Besides, the "return to capitalism," as described by the authors, "miraculous" though it was, was achieved by means far from typical of "pure" capitalism—Ehrhardt's liberal protestations notwithstanding.

What little comparative evaluation the authors have to offer is combined with a summary in an eight-page final chapter, and refers in a general way only to the four nations discussed. This limited approach is explained simply by the fact "that the human mind can absorb only just so much information at one time without becoming confused" (p. v) and that the book was intended for freshmen and sophomores anyway.

Now, couldn't we avoid confusion, if we let our freshmen mature, and, perhaps in their junior or senior years, confront them with a coherent framework within which to examine the differences in conditions and problems of growth, natural endowment and historical development of both developed and underdeveloped countries, the problems of sharing capital and productive techniques, in short to a comparative analysis of systems at different stages of development, without neglecting, however, the interaction of economic, political, and social factors. Is it necessary to subject our students to historical detail, much of it of secondary importance, or—the other extreme—to abstruse deductions as to the accuracy of comparative measurements? Of course not! Sometimes I feel that half of our task is accomplished, if we can only convince them that developmental projects are not just philanthropic operations.

As it stands, the book does not fulfill the proper function of a comparative development text. It may still serve a purpose, if a sequel is planned—a sequel that would justify its title.

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Business Fluctuations

Economics of Employment and Unemployment. By PAUL H. CASSELMAN. (Washington: Public Affairs Press. 1955. Pp. viii, 183. $3.25.)

Professor Casselman has set himself a major task in this slim volume: to provide a rounded study of the economic theories, factual realities, and policy approaches applicable to employment and unemployment. To bear out the author's own view that he has stressed the policy areas, his study would appear to require extensive treatment of the integral relationship of employment to other basic elements in the functioning of the economy, including such factors as investment, output and income. There is, however, only limited treatment of the impact of such interrelationships on unemployment policy. Although lacking depth of analysis, the volume does pro-

vide a useful outline of the elements which must be considered in taking a positive approach to the maintenance of high and stable levels of employment.

The value of this guide is enhanced by the author's clear statement of his frame of reference. It is his view that private enterprise alone cannot ensure the goal of relatively full employment, that some measure of government intervention is necessary. Casselman has well stated the positive benefits derived from mild government intervention to ensure stable and high-level employment in a democratic society, and its effect as a bulwark against collectivism. He makes clear that such government action must be fluid and flexible, and indicates the range of approaches from monetary and fiscal measures to public works, depending upon the surrounding circumstances. His view is hardly theoretical, for study of governmental policy in this country over the past two decades demonstrates the continuing concern with stability in employment. Unfortunately, while suggesting that such intervention has important implications for freedom of enterprise and collective bargaining and for stable prices as well as for full employment, he has left these implications unexplored.

Casselman deals with the numerous factors which determine labor supply and demand. Particularly useful as a device for crystallizing discussion of the subject is his classification of these into economic factors (*e.g.*, effective demand, foreign demand, capital investment, standard of living, profits, wages, hours of work, and technology); personal noneconomic factors (*e.g.*, age, physical condition, sex); natural phenomena; and war, industrial unrest and demographic influences. The likelihood of duplication and arbitrariness inherent in any attempt to classify such a complex of factors does not detract from the utility of the effort. With this classification as a tool, he contrasts the long-term, cumulative and structural elements which generally determine labor supply, and the short-run propensity to change of the infinite number of individual demands which determine the demand for labor. Implicit in the analysis is the conclusion that the demand factors can be more amenable to control, while the supply factors are more inexorable in their economic impact. A question can be raised regarding the placement of the various factors on the demand or supply side (*e.g.*, unions are placed solely on the supply side, while technology is placed solely on the demand side). Further, the author does not discuss the interaction between the longer-run factors making for the supply of labor and the shorter-run factors involved in demand. The bolstering effect of the long-term population growth trend on investment and its concomitant effect upon output and employment have obvious implications in the short run for labor demand, as well as for labor supply in the longer run. But the author hardly treats of the postwar development in long-term population growth and in technological change prospects; instead, he attributes the sustenance of employment during the past decade largely to "abnormal factors," such as defense expenditures.

The treatment of seasonal factors in employment provides an interesting contrast with that of output and employment. The author has made good

use of the substantial literature on seasonality in employment. The result is an intensive treatment, including consideration of statistical techniques to be applied in eliminating the effects of seasonal employment in employment series. The treatment of output and employment, on the other hand, is thin, reliance having been placed largely on studies of the 'twenties. This study apparently was completed prior to the respective explorations of the Joint Committee on the Economic Report, Stanley Lebergott, and John Kendrick.

The chapter on cyclical employment is primarily a good summary of business cycle theory, but does not provide a clear factual description of employment and unemployment in the cycle. Structural, frictional, technological, casual and personal unemployment are grouped as forms of unemployment other than cyclical and seasonal. The author places much emphasis on the structural form—resulting from changes in economic structure and economic environment—which, as he states, was largely ignored by Keynes. It is, however, unfortunate that Casselman does not accompany his general treatment of structural change with an analysis of such contemporary phenomena as the growth in population, the shift in employment to the service trades, existence of "depressed" areas, and technological development.

JOSEPH P. GOLDBERG

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Money, Credit and Banking; Monetary Policy; Consumer Finance; Mortgage Credit

Bankpolitik. By HEINRICH RITTERSHAUSEN. (Frankfurt/Main: Fritz Knapp Verlag. 1956. Pp. 224. DM 16,80.)

Professor Rittershausen has written a challenging book, for which he claims two major purposes: First, to present a realistic picture of money and credit aimed at "simplification and elimination of contradictions which make the understanding of 'theoretical' explanations so difficult for bankers." A major example of rejected theory is the quantity theory of money, and a significant part of the book consists of an attack on it. The second purpose is to present monetary theory as part of general price theory, and to go beyond Keynes and his successors in integrating the two.

The book is substantially more successful in the second purpose—integration of price and monetary theory—than with the first aim, "realism." The attack on the quantity theory presents, in part, the usual strawman, and must be tiresome to many American readers at this stage of economic literature. Most bankers would find a substantial part of the book an exercise in logic, and they may well wonder about its relation to "realism." More important, some of the theories cannot be squared with actual historical events. For example, the author sees a direct relation between government deficits and price movements. However, in the United States since 1930 not only has there been no direct relation between deficits and prices, but in most of the years changes in the deficit and changes in prices moved in opposite directions.

The book provides an interesting list of ten major differences between the German and the American monetary systems; some of them will surprise American readers. Among the claimed differences are: (1) In the United States, short- and long-term credits are not strictly separated, as they are in Germany, where long-term deposits are administered and invested by specialized institutions. (2) There is no large public debt outstanding in Germany. As a result, open market policy does not operate in Germany as it does in the United States. (3) Because of the large public debt outstanding in the United States, and the need to keep interest rates low, interest as an instrument of the central bank is largely ineffective. In fact, as the author sees it, the Federal Reserve Board sees as its primary task to assure low interest rates for government credit. In Germany, on the other hand, the central bank's major task is to assist in the development of the private economy.

American readers may well be disappointed with the sketchy treatment of government policies. The author regards the maintenance of price stability as the major purpose of government credit policies, and a balanced budget as essential for currency stability. This is treated in the nature of an assumption, rather than as something to be discussed, and as a result there is no analysis of alternatives, such as stability of income and employment.

HANS A. ADLER

Washington, D. C.

De Omloopssnelheid van het Geld en zijn Betekenis voor Geldwaarde en Monetair Evenwicht. (*The Velocity of Circulation of Money and its Significance for Purchasing Power and Monetary Equilibrium.*) 2nd ed. By J. ZIJLSTRA. (Leiden: H. E. Stenfert Kroese N.V. 1955. Pp. xiv, 235. *f.* 13.—.)

Professor Zijlstra, a member of the younger generation of Netherlands economists, discusses the velocity of circulation of money (V) by means of a critical analysis of some important interwar studies of the subject. After a brief summary of the basic work of his eminent fellow-countryman, M. W. Holtrop, the author considers the circular flow of money, the objective and subjective factors determining V, and the relation between V and the velocity of circulation of goods (mainly following Arthur W. Marget). In dealing with the relation between V and the purchasing power of money, he discusses some alternative formulations of the quantity theory, the criticism of that theory by the Cambridge economists (including Keynes), and the countercriticism by Howard Ellis and Marget. Finally, the author touches upon the relation between V and monetary equilibrium; however, apart from a critical discussion of F. A. Hayek's concept of neutral money, he confines himself mainly to a schematic summary of the possible effects of changes in the factors determining V upon the flow of money (MV), largely following Hans Neisser and J. G. Koopmans. He comments on the various meanings of the concept of monetary equilibrium (stabilization of MV or of the price level) and states that this concept is a tool of monetary analysis rather than a goal of monetary policy.

The author apparently aims at restating neoclassical economic thought

and does not attempt to make fundamental original contributions to the solution of the problems of monetary theory. He draws logically correct conclusions from reasonable and simple assumptions of basic economic relations, without trying to justify these assumptions by presenting statistical or other factual material. Surprisingly, he does not mention the treatment of problems implying the concept of V in postwar economics and especially in national accounting and flow-of-funds studies—a shortcoming, probably inevitable in the first edition of the study (1947), but difficult to understand in the new edition, in view of the pioneering work recently undertaken in the field of monetary national accounting by Netherlands economic theorists (Jan Tinbergen) and by the Netherlands Bank under the leadership of President Holtrop. The author also fails to deal with the basic problem that makes the concept of V important for the practical application of monetary policy: Many if not most of the tools of traditional monetary policy (*e.g.*, open-market operations and changes in reserve requirements), while aiming at influencing MV, have a direct and immediate effect only upon the stock of money (M); therefore, V is the most essential element in transforming the effect upon M into effects upon MV and perhaps further into effects upon the flow of goods.

In spite of these limitations, the study is valuable, not only because it draws attention to the contribution of some economists that have too long been neglected, but primarily because it helps to clarify the concept of V and thus to prepare the way for a reformulation of monetary theory in terms relevant to economic reality and to the revival of monetary policy.

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A Discussion on Methods of Monetary Analysis and Norms for Monetary Policy. By H. C. Bos. (Schiedam: H. A. M. Roelants, for the Netherlands Economic Institute. 1956. Pp. vii, 52.)

The avowed purpose of this slim volume is to summarize and clarify the issues involved in recent controversies in the Netherlands over monetary analysis and policy. In addition the author, a staff member of the Netherlands Economic Institute, has contributed a brief discussion on "The Economic Model as an Aid in Describing Economic Processes," which, while quite elementary, is useful in putting the controversy in perspective. The author has limited himself to a very modest amount of evaluation; which is perhaps unfortunate since one feels as he reads Mr. Bos' account of the controversy that the author has a great deal more to say on the subject himself.

While others, including J. Tinbergen and J. G. Koopmans participated in the extended discussions in Dutch journals over the period 1953–55, the principal protagonists appear to have been M. W. Holtrop (who is said to represent the viewpoint of the Netherlands Bank) and H. J. Witteveen. And it is the opposing viewpoints of these two gentlemen that comprise the main content of the volume under review. (Needless to say, this reviewer's understanding of the controversy is gained solely from Bos' account of it.)

The controversy, which is by no means exclusively Dutch, involves the

meaning of "monetary equilibrium"—and of inflation and deflation as deviations from monetary equilibrium—as a core around which differences in theory and in norms for policy are debated. Witteveen employs an exceedingly crude Keynesian model with Robertsonian lags wherein autonomous changes in expenditure together with a multiplier of fixed value determine changes in income. The supply of (or perhaps the demand for) money is assumed to be infinitely elastic with respect to "monetary tensions" (in place of the interest rate); so that no purely monetary influences need be taken into account. Monetary equilibrium is then defined as an unchanging national income. Inflation accordingly can be "a desired *quantity inflation*" or "*an undesirable price inflation.*"

Holtrop, in contrast, will have nothing to do with multiplier analysis, assuming (according to Bos) that the marginal propensity to spend is unity in the absence of monetary disturbances. This assumption appears to be merely a formal one, however, since he explicitly admits that part of any rise in income may leak into imports, while a part of any adjustment to disturbances in the money-security markets involves hoarding or dishoarding. In any case, monetary equilibrium for Holtrop means equality of the supply of and demand for liquid assets.

As Bos indicates, with the aid of his own Keynesian-type model, the question at issue is simply: which markets dominate the general equilibrium result in an aggregative general equilibrium system? In a simple model where we have a market for goods and services, a market for labor, and a market for liquid assets, the usual Keynesian assumption is that the first dominates the other two (Witteveen's position). The rationale for the passivity of the liquid assets market is the prevalence of large stocks relative to incremental supplies, a high price elasticity of demand for the stocks, and the resulting significance of speculative decisions in the market.

Pre-Keynesian theory in contrast usually assumed that the goods and labor markets are automatically self-equilibrating so that the only disturbances relevant for policy consideration are monetary disturbances (Holtrop's position). Bos believes that this issue can be resolved only by the empirical testing of econometric models, a view that Witteveen might accept, but not Holtrop, who prefers apparently the "qualitative reasoning" of the experienced central banker.

At the risk of further feeding the fires of controversy this reviewer would like to make a few suggestions. First the labor market may not be passive in the sense that either Keynes or the pre-Keynesians assumed it to be. It may and often does force difficult adjustments on the other markets, further complicating the concept of "monetary equilibrium." Second, both Witteveen and Holtrop may be right about their assumptions depending on which phase of the business cycle we are experiencing. There are very few in our profession today who would put primary emphasis on monetary policy as a means of checking and reversing a downturn. On the other hand, for a variety of reasons it seems reasonable to assume a marginal propensity to spend in excess of one in the upswing of the cycle until some sort of ceiling is reached.

This brings us to our third and last point which concerns the problem of maintaining output at the maximum level in an economy that is growing. In his only reference to growth Bos assumes that all factors of production are growing in the same proportion. This, however, assumes away the principal obstacle to the maintenance of uninterrupted growth—the existence of a ceiling; for it is only when the factors are growing at different rates that the economy periodically reaches limits to growth that are not easily overcome by social policies. What is needed is a constant adaptation of techniques of production to the differential rates of growth of factors as well as to the capricious requirements of technological progress; and this may require movements of rates of return to factors and of their relative shares in income that our traditional social policies simply cannot enforce. Somehow a concern over the meaning of "monetary equilibrium" in a static context seems to avoid the really basic questions for social policy in growing economies.

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Public Finance; Fiscal Policy

Finanspolitikens Ekonomiska Teori. By Bent Hansen. Statens Offentliga Utredningar, 25. (Uppsala: Almqvist & Wiksells. 1955. Pp. 403.)

Finanspolitikens Ekonomiska Teori is divided into three main parts.[1] Part I is concerned with general problems and methods in fiscal theory. Also special attention is given to issues concerning budget balancing and tax incidence. Part II deals with the microeconomics of fiscal theory, focusing primarily on household spending and saving with only cursory treatments of the theory of the firm and the behavior of "organizations." Part III is a treatment of macroeconomic fiscal theory. As Hansen himself points out, there is little integration between Parts II and III (or for that matter between Parts II and I)—a lack he attributes largely to the inadequacy of microtheory and the need for empirical work in this area before it will be possible to build a more satisfactory and realistic macromodel on micro foundations.

In Part I Hansen poses a basic "rule of thumb" (stated to be "by no means without exception"), that in certain important and commonly used

[1] Readers familiar with Hansen's *A Study in the Theory of Inflation* (New York, 1952) will note that there is remarkably little in common between these two books except for the logical tightness of the arguments, the fact that both deal in some way with inflation, and some general features of methodology. The former book took as its point of departure the traditional period-analysis approach that has marked the development of Swedish economic thought ever since Lindahl's work in the 1930's, bringing to this approach fresh insights that gave it new life. In *Finanspolitikens Ekonomiska Teori* period analysis occupies only a small place. Also, in the earlier book problems of over- and undersupply (or demand) in factor markets were given equal emphasis with such problems in consumer-goods markets. But in this book it is capital goods rather than factor markets that are paired against consumer-goods markets, and the capital-goods markets are considered almost exclusively in their relation to the policy goals of "full employment" and of stable money—defining the latter in terms of consumer-goods prices only.

types of economic models the number of means (or parameters) that must be manipulated by the government to attain given ends is equal to the number of ends.[2] This rule sets a pattern for the analysis through much of Part III. It has been criticized for lack of realism in failing to take into account the multiplicity of ends in fact involved in public policy, the limited number of means or action parameters available to the government, the limited permissible ranges of adjustment of such parameters, and the fact that in practice this last consideration may (and often does) imply that more than one means must be used for attainment of a given end. There can be no doubt that Hansen himself is quite aware of these problems. He avoids them primarily by a rigorous limitation of his analysis to consideration of selected goals and by the ways in which he delimits his theoretical models. This limits in turn the practical applicability of some of his conclusions. It may be justified as necessary simplification in the stages of rebuilding—one might even say of building—a groundwork for a sound fiscal theory that can then be elaborated to yield practical results. However, one may wish that he had not so completely abstracted from problems of structural adjustment within the consumer and the capital-goods sectors, and that he had given more attention to dynamic process analysis.

Hansen's discussion of budget balancing has evoked considerable reaction in Sweden. This analysis centers around the distinction between action parameters (public means) and endogenous variables. He argues convincingly that budget surpluses and deficits are not parameters of public policy and that no simple relation exists between changes in the budget balance and changes in the functioning of the economy.[3] The defense of those attacked by Hansen has been that the budget balance may nevertheless be useful as a practical indicator of other things, and that his analysis is not as contrary to theirs as he seems to assume. However, this defense is hardly adequate, for the emphasis in analysis that follows from Hansen's approach is quite different and leads to different results in important cases.

The most important chapters of Part II are those dealing with the household as spender and saver, and comments here will be confined to that analysis. The author develops an intertemporal theory closely related to Hicks and Fisher, but differing from them in the analysis of goals of saving and their implications. With this model as a background he proceeds to examine the effects of various fiscal policies on household spending and saving. Most of his analysis is concentrated on two simple cases, a proportional income tax and a general sales tax, and then extended to more complex cases (such as a progressive income tax) and to other fiscal meas-

[2] This is a proposition argued also by Tinbergen, but Hansen's approach differs from Tinbergen's in being more abstract rather than econometric and empirical, and it is presented in a broader framework.

[3] Simple rules of thumb such as that "deterioration of the budget balance gives rise to expansionary tendencies" are shown to be untenable. They are untenable not because the budget balance is merely an approximation, but because it is not an approximation to the parameters that require attention.

ures. Interest rate policy is considered in relation to these fiscal policies. The results with respect to consumption and saving are shown to vary drastically with the preference functions assumed, especially in the short run, pointing up the need for more empirical investigation. In comparing the effects of income and consumption taxes on spending and saving Hansen distinguishes three cases: (1) when the ratios of taxes to income are the same, (2) when the two taxes have the same yields, and (3) when the same level of real consumption is sought (and realized) as an end of the tax policy. On the first two his results are largely refinements of conclusions of earlier writers, except for an important analysis of some previously unrecognized assumptions concerning interest rates.[4] In the third case, he focuses on analysis of the tax burden. Three possible definitions of the lightest burden are suggested: (a) the tax that puts the household on the highest possible indifference curve consistent with the reduced level of consumption (the real or subjective burden); (b) the tax involving the lowest ratio of taxes to income (the nominal burden); (c) the tax leaving the highest amount of saving. He reaches the somewhat startling conclusion that by criterion (a) the consumption tax is superior to the income tax. Comparative effects of the two kinds of taxes when the burden is defined by criterion (b) or (c) are indeterminate.

Part III, which develops a macroeconomic fiscal theory, first considers the problem of defining explicitly the two goals of public policy around which most of his analysis will center. These are a stable value of money, defined as stability in the index of consumer-goods prices, and full employment, defined as equilibrium of demand and supply for labor (regardless of the level of employment). Analysis is then built on a highly simplified static short-term model for a closed economy, a model subsequently elaborated to take into account capital growth and the impact of foreign trade. Four sectors of the economy are distinguished: (1) consumer goods enterprises; (2) capital goods enterprises; (3) wage-earners' households; (4) enterprisers' households. For (1) and (2) he sets up standard-type maximization equations using marginal analysis, and for (3) and (4) equations defining disposable income. Two other equations give conditions of equilibrium in the consumer-goods and the capital-goods markets. The places of ten fiscal-policy parameters and of government-controlled interest rates in the model are developed briefly. Although the short-term static model does not say much, it lays the groundwork for subsequent analysis of fiscal measures.

In applying this model Hansen starts first with the assumption of an equilibrium situation and considers the effects of fiscal policies that disturb that equilibrium and the policies called for to neutralize such disturbances. Here results are relatively puerile. But he then goes on to a more interesting

[4] This is especially important in the second case, when the two taxes have the same yields. Abstracting from the possibility that savings goals may depend on the ratio of posttax income to pretax income and assuming that interest rates vary inversely with this ratio, he concludes that when savings are positive an income tax with some given yield has less effect on real consumption and real saving and more effect on nominal saving than a consumption tax yielding the same revenue (and inversely when savings are negative).

discussion of fiscal policies appropriate when disturbances to equilibrium arise from within the private sector of the economy. The analysis is still highly abstract and static, the disturbances arising in some one variable spontaneously, without any consideration of causal mechanisms. For this reason among others it takes a good deal of patience on the part of the reader to wade through Hansen's various cases, and more than a little self-control to wear the large blinders required by his assumptions. Yet the struggle is well worth while.

Special attention is given to direct versus indirect taxes, and among the latter to taxes on consumption versus capital goods. Here interest rates are regarded primarily as alternatives to capital-goods taxes. The most interesting part of the discussion is the consideration of fiscal policies appropriate to maintaining stable money (consumer-price indexes) and full employment given certain types of changes in production functions. Its greatest value is probably in pointing up little recognized contrasts in the roles of these different fiscal measures, contrasts that have considerable validity even with relaxation of Hansen's stringent simplifying assumptions.

Before going on to the more complex problems associated with wages and wage policies, Hansen devotes a chapter to long-term problems. The treatment is highly formalistic, and the only real modifications of the short-term model are introduction of the effects of capital growth and of private wealth on production functions and on demands for consumer and capital goods. Lip service is paid to the role of liquidity, but that is all. Period analysis is invoked, but with a recognition of the practical problem of calendar time versus the abstract "periods" within which plans remain unchanged. The implications of this distinction and of the length of the time period for the use of simultaneous versus recursive models are mentioned, without any attempt to follow through in terms of Hansen's own constructs —though this is a subject on which he has written, with Ragnar Bentzel, an article now famous in Scandinavia. On the whole Hansen's attempt to "dynamize" both forward and backward in time is disappointing.

No one has yet been very successful in tackling problems of wage policy in relation to price levels and full employment (however defined). That Hansen meets with very limited success in this endeavor is hardly surprising. He recognizes some of the problems that arise in using his definition of full employment when the labor market is nonhomogeneous (with mobility among markets limited), but he is not successful in extricating himself from the difficulties. As he himself points out, given heterogeneous labor markets the nature of the "equilibrium concept of full employment" must depend on socially emphasized value norms that put first a more or less complete elimination of absolute unemployment or that emphasize maximal production in some specifically defined sense. But here he stops, even though his later discussion of the effects of disturbances from outside economies might have provided some clues for elucidation of his wage policy and related problems. Paradoxically at no point in his book does Hansen's neglect of structural problems and of interrelations among endogenous variables over time appear to be so serious as here where he begins to attack them. The defect is not remedied by his consideration of the im-

portance of various union goals as restraints on or conditioners of public policy.

Hansen's main conclusions in summing up his wage policy chapter are: (a) that in principle government has disposal over means to attain the goals of stable money and full employment (as he defines it, now somewhat ambiguously) regardless of changes that may occur in money wages; (b) that this is made easier if there are coordinate changes in money wages. The relative optimism of his conclusions is due in part, as Hansen himself recognizes, to his definition of full employment and to his assumption that unions do not insist on policies in direct conflict with generally accepted social goals. A more solid basis for this optimism is his demonstration that government can, by indirect means, influence the total wage bill without compromising the goals of full employment (again in his equilibrium definition) and stable money—and that it can do this in a manner consistent with goals in fact commonly emphasized by unions.

When he comes to modify his analysis to take into account international trade and the impact of this on the domestic economy, Hansen refines his fiscal policy analysis and puts greater emphasis on special types of both fiscal and monetary policies that are more selective in their impact (also, monetary policies considered include quantitative restrictions as well as interest rates). He concludes among other things that for an economy with significant international trade it may be difficult if not impossible to hold the consumer-price index constant without government-enforced adjustments in the value of money in international exchange.

The final chapter dealing with "uncertainty" is the most disappointing of all. The uncertainties considered are not those of decision-making units within the private economy, but only uncertainties on the part of government concerning the economy's mode of functioning (the appropriate model of the economic system) and the external conditions that may affect the economy.

Summing up, it is clear that Hansen's most important contributions are those that can be made with theoretical tools of a relatively static nature. What he does in these ways is important and far outweighs the fact that he has failed to genuinely dynamize his analysis or to take account of many important structural features of an economy (both static and dynamic). Moreover, there are many points that are suggestive concerning potentially fruitful future research—both empirical and theoretical. Despite its manifest limitations, this is an important book.

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An Expenditure Tax. By NICHOLAS KALDOR. (New York: Macmillan. 1956. London: Allen and Unwin. 1955. Pp. 249. $2.75.)

Kaldor presents us with a spirited, nay passionate, plea for a new approach to progressive taxation. He advocates that the progressive income tax be replaced, at least in part, by a progressive spendings tax. Such a tax, he believes, is no less equitable in principle, and more equitable in practice.

Moreover, he considers it superior in its economic effects. Britain needs a higher level of capital formation, and the necessary resources must be released by reducing luxury consumption. Since such consumption is financed largely by dissaving, this cannot be dealt with effectively by an income tax. A spendings tax is the answer. Although Kaldor devotes more space to the equity aspects of his case, the need for increased capital formation seems the crux of the matter.

The book, while small in size, excels in a high idea-to-page ratio. It makes a splendid contribution to a rethinking of the traditional principles of taxation. Like the tracts of old, it may even have an effect on the actual course of legislation.

Kaldor agrees with the advocates of the income tax that taxation should be progressive according to means, and that only taxes levied on persons are capable of achieving the necessary graduation and differentiation. However, he feels that actual expenditures on consumption are a better index than income or potential spending power. He holds with Hobbes that a person should be taxed "by what he takes out of the common pool, not by what he puts into it."

Questions of equity being essentially matters of taste, there is no way of telling whether accretion or spending is *the* proper index of equal ability. The choice between the two is a matter of social value judgment, no less than that between regressive and progressive rates. I would rather take accretion, but Kaldor is surely entitled to take consumption.

Kaldor proposes that the surtax schedule of the income tax be replaced gradually by a sharply progressive spendings tax, with marginal rates rising to over 300 per cent. He holds that such a tax will be as, or more, progressive in terms of income than the surtax schedule which it is to replace. Partly, his conclusion follows from the proposed rates of the spendings tax. Partly, it follows from Kaldor's proposition that high-income recipients are heavy dissavers; and a final reason is that high incomes widely escape the personal income tax due to the lack of capital gains taxation. All this helps to explain why the spendings tax appears to have found support in British Labour circles, even if it is assumed that it is to be a replacement for (and not an addition to!) the income tax.

Just how progressive the spendings tax will in fact be depends on how consumers respond to high marginal rates of tax. The more luxury consumption is reduced, the less will be paid in tax, and the less progressive will be the actual distribution of yield, although not the distribution of consumption foregone. As distinct from the income tax, the very purpose of the spendings tax may not be to provide a yield, but to reduce private consumption and release resources for private capital formation. Thus, its impact distribution may have to be measured in terms of consumption reduced, rather than tax paid.

Kaldor holds that it is much simpler to devise a proper concept of spending than a proper concept of income. However, in his highly stimulating discussion, he seems to overstate the difficulties of the income tax and to understate those of the spendings tax.

On the income-tax side, Kaldor stresses the heterogeneity of the income concept, and the difficulties of dealing with various forms of income in a uniform fashion. The present (British) income tax is said to be inequitable because a more or less arbitrary line is drawn between kinds of receipts which are included and others which are not, and because the effective rate of tax discriminates against fluctuating incomes. He feels that the system could be improved in principle by adding a tax on capital wealth, by including all forms of accretion whether realized or not, and by making allowance for averaging. Even then, there remains the difficulty of distinguishing between capital gains which give rise to spending power and are properly taxed, and others (due to a rise in the price level or a decline in the interest rate) which, he feels, do not give rise to spending power and should not be subject to tax.

His critique of the income tax offers many points of interest, although too much is made of the difficulties of heterogeneity. The problem in many cases is one which can be handled by averaging devices. As to points of detail, I fail to see why the accretion concept should require a tax on property in addition to a tax on income, provided that all forms of accretion are included initially as income so that any gain in net worth is taxed at the outset. Also, I am not persuaded that capital gains due to a decline in the rate of interest should necessarily be excluded. Such an increase in capital value, to be sure, does not raise the future income stream to be derived from capital, or the present value of assets as deflated by the prices of capital goods. At the same time, it does raise their value in terms of potential present consumption.

On the spendings tax side, many of these difficulties are said to disappear. We need not worry about retained earnings or capital gains, and need not answer the puzzling question of "when does income accrue?" We must merely determine when consumption occurs, be it out of income or out of capital. We are relieved of the necessity to define total accretion, or consumption plus saving.

At the same time, we are saddled with a new problem, not encountered in the income tax, of having to distinguish between consumption and saving. Why are outlays for schooling and health to be considered "spending," while those for housing or rare pictures are considered "investment"? Are different types of spending—such as spending for *An Expenditure Tax* and spending for lollypops—any more homogeneous than various types of income? What is the rate of interest at which imputed spending is to be determined? Is not the problem of averaging quite similar in both cases? How are we to evaluate business incomes in kind which are, in fact, spending? The conceptual difficulties and the need for arbitrary demarcation, I fear, are about as great in the one case as in the other.

The proof of the pudding, of course, is not in comparing a perfect income tax with a perfect spendings tax, but in comparing both as they turn out in practice. Again, Kaldor tends to overstate the administrative difficulties of improving the income tax, while understating those involved in the spendings tax.

Discussion of the crucial problem of spendings tax administration is limited to one brief chapter. The assessment formula would be consumption =(cash at beginning of year+receipts including income, gifts, bequests, etc.,+borrowings+proceeds from sales) minus (loans made+investments purchased+cash at end of year). The purchase of houses is to be treated as an investment, but an imputed rental outlay is to be treated as consumption. Most gifts and bequests are to be allowed as deductions by the donor, subject to certain safeguards. Some allowance would be made for size of family; and certain additional needs, such as those arising from disability, would be credited. The tax assessment is to be based on information provided by the individual.

While it would be ill-advised for one economist to suspect another of being inexpert in matters of administration, it seems to me that Kaldor shows little recognition of the host of administrative difficulties inherent in a spendings tax. Some problems are similar to those of the income tax, including the determination of consumption in kind. Some difficulties, such as the determination of unrealized income, are dropped; but others, involved in separating consumption from investment, are added. The proper tracing of capital transactions, so important to the spendings tax, will hardly be simpler than the working out of some means of capital gains taxation; many difficulties are bound to arise in drawing a line between spending and saving; and high marginal rates on spending are likely to induce a flock of new compensation and investment practices designed to avoid them. Kaldor's observation that the problems of a spendings tax would hardly be worse than those of a perfect accretion-type income tax is not the issue; the problem is whether a spendings tax in practice would turn out better than the income tax. Perhaps it would, but the opposite seems more likely.

In dealing with the economic-policy aspects of the spendings tax, Kaldor compares its effects on saving, risk-bearing and work incentives with those of an income tax. The discussion of taxation-effects on saving is interesting, and at the heart of Kaldor's thesis. He begins with the venerable Mill-Fisher-Pigou argument that the inclusion of saving in the income tax discriminates against saving while the spendings tax does not. However, Kaldor's point is not so much that the former involves an excess burden, but that saving is held socially desirable. This establishes a preference for the spendings tax. Kaldor feels that the disincentive effect of the income tax on saving is slight for nonproperty owners who save for old age or emergencies. Indeed, one could add that they must increase their saving in order to secure a given nest egg. However, Kaldor feels that the disincentive effect is highly important for wealthy property owners who need not save for this purpose. Whether this is so depends on their preferences between increased consumption and accumulation.

However this may be, it is interesting to note that Kaldor places little emphasis on the traditional Keynesian proposition that the tax burden may be shifted from saving to consumption by reducing the progressivity of the tax structure. This is the more striking since his hypothesis—that

the rich maintain consumption by dissaving—seems to imply that their marginal propensity to consume is zero, consumption being independent of disposable income. This being the case, the traditional proposition (which is based on the hypothesis of a falling marginal propensity to consume) would apply with particular strength. It is not emphasized because the problem is not to reduce consumption in general, but to reduce luxury consumption in particular. Unfortunately, the reader is given little empirical evidence, other than a meagre sample survey of 1951/52, regarding the distribution of saving and dissaving. Moreover, little is done to appraise the quantitative effect of the proposed spendings tax on saving.

Kaldor's analysis of taxation-effects on risk-taking by individuals is based on a distinction between income risk and capital risk. Let us suppose that investments involving little capital risk (such as short-term bonds) yield 2 per cent, while others involving more capital risk (such as long-term bonds) yield 4 per cent. A 50 per cent income tax will reduce the yield on short-term bonds from 2 to 1 per cent, and that on long-term bonds from 4 to 2 per cent. Before tax, the reward for assuming the large capital risk in buying the long-term bonds was worth 2 percentage points. Now, this has been reduced to 1 per cent only. Hence, the investor will shift to less risky investments. A tax on capital value, on the other hand, will not affect the net addition to income which is obtained by shifting from the less to the more risky investment. Hence, it will have no adverse substitution effect. The effect of the spendings tax is said to be similar in this respect to that of the property tax.

This analysis I find rather disappointing. It seems to follow conclusions reached in the 'thirties and makes no use of studies in the analysis of taxation and risk-bearing that have been developed since then. These studies have found that the extent to which losses can be deducted plays a crucial rôle in the effect of an income tax. While Kaldor notes the rôle of loss treatment in other connections, no attention is paid to this factor in the chapter on risk-taking by individuals. The conclusion seems limited in application to the case of no loss offset, and this is hardly the most interesting one.

Next, Kaldor compares the effects of a proportional income and spendings tax upon work incentives. He assumes first, that saving is used exclusively to provide for future consumption. Assuming equal rates of tax, the effective rate of tax per unit of real income will be lower under the spendings tax. Assuming equal yields of tax, this advantage is said to disappear, since a higher rate will be required under the spendings tax. We cannot say which tax will have greater disincentive effects. However, Kaldor believes that work effort will be higher under the spendings tax if the holding of property is considered valuable as such. Under a spendings tax, the worker will have the reward of holding on to his savings until the tax becomes due, whereas it must be paid at once under the income tax. Therefore, the real wage is reduced less. While this may be the case, the basic argument seems to rest on the assumption that a higher effective rate of tax means a lower level of work effort. This may be so, but it need not be.

In a highly interesting chapter on company taxation, Kaldor takes the

view that company taxes should be integrated with the personal income tax, but that taxation of undistributed profits is but a poor approximation thereto. Thus he notes with relief that the company tax could be dropped under a spendings tax approach. Nevertheless, he presents an interesting discussion of the economic effects of company taxation. An analysis of changes in profit margins by industries between 1938–51/53 shows a much stronger increase in competitive than in the noncompetitive industries. If shifting had occurred, we might have expected it to be stronger in the latter group. Thus, the finding gives little or no support to the hypothesis of shifting.

Nevertheless, Kaldor feels that profits taxes will be reflected in higher profit margins in the long run. To begin with, profits taxes will reduce retained earnings and depress capital values. Since dividends are maintained, dividend yields will rise. Eventually, expansion may require that capital be raised on the outside. To attract this capital, commensurate yields must be offered, and to finance these yields, larger profit margins are needed. This, if I understand it correctly, is the chain of reasoning. But, if larger margins are *needed*, does it follow that they can be obtained? If so, why will not management raise prices in the first place, to prevent the decline in capital values?

In all, Kaldor does not feel that company investment has been retarded by taxation. He finds that there has been no stringency of investible funds available to companies for outside financing; and he does not think that taxation of undistributed profits acts as a serious disincentive for company investment.

A further argument in favor of a spendings tax is the familiar proposition of functional finance that the very purpose of taxes is to check spending. Thus, a spendings tax—be it on consumption and/or investment—is the most efficient tax. As distinct from the old fiscal policy view of deficit and surplus as a means of stabilization, the required balance between *ex ante* saving and investment may be secured by a proper mix of incentive taxes and/or subsidies to encourage or discourage spending for consumption and investment. Thus, full employment can be maintained with a balanced budget at whatever rate of capital formation or growth is desired.

It is only in the very last paragraph of his economic analysis that Kaldor briefly notes what, to me, seems the most important point in his testimony on behalf of the spendings tax. This is the proposition that Britain will require a high rate of growth if it is to maintain a competitive position in the world market, that a lower level of consumption is needed to permit this, that this should be accomplished in line with equalitarian principles, and that, therefore, the spendings tax is best designed to meet the bill.

If my comments have been on the critical side, this only testifies to the thought-provoking and stimulating nature of Kaldor's book. It is suited ideally for classroom discussion, and constitutes a high-voltage shock treatment to established thinking.

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Government Budgeting. By JESSE BURKHEAD. (New York: John Wiley. London: Chapman & Hall. 1956. Pp. xi, 498. $7.50.)

Within recent months two important books on budgeting have appeared written by economists who previously served in the Bureau of the Budget. One is Arthur Smithies: *The Budgetary Process in the United States* (New York, 1955). The other is the book under review. Neither duplicates the other; rather, each complements and supplements the other. The former is concerned with a critical analysis of federal budgeting in this country and with detailed recommendations for budgetary reforms at both the executive and congressional levels. The latter is concerned with the pure theory, the historical development, and the present status of budgeting at all levels of government, federal, state, and local, here and to some degree abroad. Emphasis is placed on organizational and procedural matters. The author however does not look upon organizational and procedural remedies or administrative "gadgetry" as cure-alls. He specifically warns against the extremes of procedural specialists (p. 247).

Government Budgeting is addressed to economists, political scientists, public administrators, and government officials. The book is divided into four parts. Part I, The Budget and Modern Government, provides the historical, institutional, and theoretical setting for the book. Part II, Budget Classification, covers the various methods of classifying budgetary data for the purpose of facilitating rational governmental decision-making. Part III, The Phases of Budgeting, covers all stages of the budget cycle including budget formulation, execution, and review at all levels: bureau, agency, Budget Bureau, White House, Congress, and the General Accounting Office. Part IV, Specialized Budget Problems, covers revenue-estimating, public enterprises, the annually balanced budget, and a pioneering chapter on budgeting for economic development.

The author regards the study of budgeting as a study in applied economics, namely, the allocation of resources between the public and private sectors of the economy (p. vii). Although the budget is defined as a "statement of revenue and expenditure for a future period" (p. 70), the book is concerned basically with the expenditure budget. This undoubtedly reflects the general neglect which the revenue budget has received historically in this country.

The theme of the book is that sound budgeting requires close coordination and integration of policy determination, planning, programming, and the budget-making process at both executive and congressional levels. A sound budget can not be formulated, executed, and reviewed in a vacuum. Improved administrative tools and techniques such as performance and program budgets (the author differentiates correctly between the two, p. 139), accrual accounting methods, program auditing and review rather than mere accountability, and others recommended by the several Hoover Commissions are steps in the right direction toward more rational and intelligent governmental decision-making, but are not solutions in themselves.

Rivalry, friction, and distrust between the executive and the legislative branches of our government have done much to retard efficient and effective

budgeting in this country. In the political area, "pork barrel" expenditures are "recognized as an inevitable and at times a desirable device for reshaping national policy" (p. 322).

While the author has considerable criticism of the Executive Office and Congress on budgetary and related matters, he has comparatively little to say on the deficiencies of the Budget Bureau, unlike Smithies, the Hoover Commissions, and others.

An important feature of the book is the belief that federal budgeting should be integrated with fiscal and economic policy as it relates to economic stabilization and long range economic growth and development. For underdeveloped nations, considerable government planning for capital formation purposes is assumed necessary (p. 470), and mild inflation desirable as an investment stimulant (p. 473). The author believes that it "may be very nearly possible [to have the advantages of inflation yet avoid the disadvantages] as long as the rate of inflation is kept within narrow limits." He suggests that "a 10% annual increase in the level of prices may lead to a serious misallocation of resources" whereas "a 5% annual rate may provide the necessary stimulus to investment and the encouragement to increased employment of available resources." The latter rate sounds like a lot of inflation to this reviewer.

The author makes a misstatement, or perhaps it is a misprint (p. 471), where he says "very often, external economies can be prevented for both the public and private sector by additions to social capital," because he mentions improved roads and rail transport as examples. Obviously he must mean that either external economies can be achieved or external diseconomies avoided by additions to social capital.

The book is well written and documented, and it makes a valuable addition to the literature on the subject.

ERVIN K. ZINGLER

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Treasury Control: The Co-ordination of Financial and Economic Policy in Great Britain. By SAMUEL H. BEER. (New York: Oxford University Press. 1956. Pp. vii, 138. $2.40.)

This little book, written by a professor of government, examines the machinery whereby the Treasury controls the financial and economic policy of the British government. The emphasis throughout is on the official, committee, department, or other agency whereby Treasury pressure is exerted, together with the associated frame of governmental organization, constitutional underpinning, statutory provision, and custom or accepted tradition. Thus little or nothing is said about the substance of the existing financial and economic policies and the reasons for their adoption. Means, not matter, are stressed. The underlying information was obtained chiefly by conversation with informed persons, most of them in the civil service.

The organization of the Treasury is indicated in a brief chapter, which is succeeded by longer chapters on the coördination of financial policy, the coordination of economic policy, and the nature of the Treasury's power.

The Treasury functions through five "sides," those of Establishments, Supply, Home Finance, Overseas Finance, and Economic Affairs. Although the work of all these organizations bears some relation to financial and economic policy, that of Supply and of Economic Affairs is the most relevant.

The coordination of financial policy with respect to expenditures is the responsibility of the Supply "side." The divisions in that branch of the Treasury seek to achieve a balance in the programs of the public services, thereby preventing extravagance in some offerings and parsimony in others. This control is exercised through the requirement of prior approval. No department may vary any activity that has a financial aspect without first obtaining the approval of the proper Treasury officials. The Treasury also has the opportunity to criticize new proposals before they become cabinet policy. Through these two powers the influence of the Treasury is continually being applied. The officials of Supply are in daily or weekly touch with their counterparts in the operating agencies.

In the British government an executive is much more free of legislative control than in the American. He may, for example, even incur liabilities not already covered by an appropriation. Thus the Treasury powers are an important safeguard against abuses. Yet, singularly, these powers are founded, in the main, not on statutory enactment but on tradition.

Organization for purposes of economic policy is younger than for purposes of financial policy. This is, of course, particularly true of economic policy with a Keynesian emphasis. The present arrangement for the coordination of economic policy, which emerged from earlier provisions, dates only from 1947. In that year the Central Economic Planning Staff was transferred to the "side" of Economic Affairs in the Treasury. The CEPS, a small agency, has a professional membership composed almost exclusively of administrators. The chief is the deputy to the Permanent Secretary of the Treasury. The principal officials are four or five Assistant Secretaries and three Under Secretaries. Only one economist is employed. The staff relies on the economic section of the Cabinet Office for economic counsel.

Despite its name, the Central Economic Planning Staff is not a planning body. Its functions rather are to keep the economic affairs of the nation under surveillance and to assist the agencies that make official decisions. The CEPS provides a forum where the views of the departments that deal with economic problems can be presented, brought together, and if possible shaped into some form of agreement.

The power of the Treasury, according to Beer, is not that of command. The Treasury gives no orders either to do or not to do. Its will, rather, is made known through consultations. Even the requirement of prior approval cannot be enforced. A dissenting minister can appeal to the Cabinet in which he and the Chancellor of the Exchequer are members. Yet the Treasury does have power in the sense that its decisions are commonly accepted. That power rests less on the formal responsibilities with which the Treasury is charged than upon the nature of the civil service and the position of the Chancellor under the British Constitution. There is coordi-

nation, and there is enforcement of policy under the plural executive, largely because "there is in British government at the official level a strong tendency to reach agreement and, when conflicts occur, to find as quickly as possible a generally acceptable solution."

The Chancellor of the Exchequer usually occupies a pre-eminent position in the Cabinet. He is a member of the inner Cabinet and often is regarded as next in line to the leadership of the party. This position gives his department great authority. That authority is strengthened by the parliamentary practice, stemming from deep historical roots, of making appropriations, not to departments, but to Her Majesty. The money, having been granted to the Queen, cannot be expended until she so directs. This is done by a royal order to the Treasury, which thereupon places that department in a strategic position with respect to expenditures.

M. Slade Kendrick

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International Economics

Sterling: Its Meaning in World Finance. By Judd Polk. (New York: Harper & Bros., for Council on Foreign Relations. 1956. Pp. xvi, 286. $3.75.)

" . . . the Commonwealth rests on a moral idea, and in that ideal of co-operation between races and creeds lies the best hope for the world's future. But the Commonwealth's unity also depends on such material things as the sterling area (on whose reserves virtually all members depend). . . . " It is from this viewpoint, expressed in the *New Commonwealth* (September 17, 1956), that one should examine this study by Judd Polk for the Council on Foreign Relations. The book's purpose is to provide descriptive information and analysis bearing on the question of whether sterling arrangements are beneficial to its members and whether external arrangements are beneficial to nonmembers, particularly to the United States. No firm conclusion is set forth, but the arguments are valuable and can be readily followed by the neophyte; the work is not theoretical.

The reader is left with a picture of the independent members of the sterling area and of the dependent overseas territories growing in economic importance and tending to throw off the dominance of the United Kingdom, as Canada did, unless the Metropole (U.K.) can restore sterling to its historical role as a world currency or strengthen the regional ties of members of the area. Mr. Polk considers that the latter is the more likely alternative. He does not accept the thesis that the sterling area and the Empire are breaking up and that the repeated crises are the death-throes of British influence which will relegate sterling to the position of a national currency only. Rather, he sees Britain's (and the area's) problems as part of the postwar adjustment and of the long-run structural adjustments which are and will be required, as developing economies grow.

Polk examines the postwar problems which faced Britain and the system of controls used to relieve the several reserve crises. He then analyzes the conditions requisite to the U.K. performing the function of a financial cen-

ter in an appropriate fashion, pointing out that a prime requisite is the ability to provide capital. The U.K. balance-of-payments developments are examined to determine this ability. He stresses the key role of the Anglo-American Financial Agreement as the projected foundation for a return of sterling to its pre-1914 role. He accepts the argument advanced by others that the key failure was in British internal financial policy, but his analysis of the entire gamut of forces causing the collapse of the experiment of convertibility in 1947 makes fascinating reading.

Polk argues that, rather than recovering world-wide convertibility on a pre-1914 basis, sterling will probably play an important role in a regional setting. He stresses the regional aspect on the grounds that financial policy of members of the sterling area will be dominated by considerations of high and stable employment and an expansion of production and that an inadequate flow of international lending will not provide the enticement necessary to draw members away from regional consolidation.

An important pull on some of the independent members of the sterling area, in Polk's view, is the shifting pattern of world trade. England was previously important to these countries because of her dominance in trade and her large imports. While she is still a large importer, many of the International Sterling Area countries are finding better markets elsewhere and are building up their own reserves of gold and dollars. Despite this pull, inertia, he concludes, will probably keep these countries tied to sterling for some time to come.

The dependent overseas territories are not only tied tighter to England politically but also economically. Though several of them are major suppliers of dollars to sterling-area reserves, they have not yet developed plans for economic growth which would assure effective use of these funds for themselves. As they do, he argues, their net contributions to the reserve pool may decline. As the commodity structure of their trade shifts out of the familiar colonial pattern and as they begin to set up independent currency systems within their economies, their dependence on Britain will also diminish. A smaller dependence on sterling holdings for domestic financial purposes, a larger expenditure of foreign exchange earnings with economic growth, and a reduction of the special circumstances which have brought large earnings will alter the key role of the dependent overseas territories as net suppliers of dollars to the area. The result might be changed if sterling-area suppliers could provide the goods which economic development in the DOTs would require.

The relation of the dollar area to the sterling area is examined in a chapter devoted to consideration of depression, dollar shortage, and discrimination. The analysis of these problems is incisive. Polk is not certain that the sterling area must falter in the face of U.S. recession; the "disparate rates of productivity growth" argument as a cause of the dollar shortage is not a substantial one (Britain may well learn to compete in a variety of new industries); and "it is far from clear that discriminatory trade policies actually provide very effective insulation unless they are carried to autarkic extremes." Contrary to the proposals repeatedly urged by Balogh involving wider controls, Polk questions whether the need is not "for margins that

will make temporary disturbances tolerable and for flexibility that will make each national economy responsive to the continuous process of change in the world economy."

In his final chapter, Polk casts up the weaknesses of the sterling area against its strengths and examines the "American" case against the sterling area. He concludes that there are hopeful signs that the causes of postwar crises were temporary and that the relation of U.K. production to the amount of sterling outstanding is improving. Finally, he argues, America has viewed the sterling area too narrowly as a financial arrangement; since it underpins the Commonwealth, which encompasses a host of varied, surging peoples in a peaceful association, it may be desirable to help strengthen its sterling base.

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Modern International Commerce. By EDWARD E. PRATT. (New York: Allyn and Bacon. 1956. Pp. xv, 677. $6.50.)

The purpose of this book is to describe the practical operating details of the business of foreign trade. Except for comments in the first and last chapters (which are unrelated to the main body of the text), the book is almost entirely concerned with procedures and techniques of business organizations engaged in foreign trade and services. Export trade receives much more attention than import trade because, in Professor Pratt's view, imports commonly enter into conventional channels of trade once they are inside the United States, while the export function often reaches all the way from the point of production to the point of consumption.

Marketing is heavily emphasized in this book. A recurrent theme is that American business methods, especially in marketing, are steadily being extended throughout the world, that methods successful in the United States will, with some adaptations, also prove successful in foreign markets, and that American firms can greatly expand their foreign operations. Although export marketing is stressed, other subjects receive considerable attention. Three chapters are devoted to finance, two to import procedures, and one each to services, documentation and law.

In his treatment of all these matters, Pratt is writing for the practitioner. His descriptions of specific techniques are authoritative, accurate, and useful, but in his discussions of broader aspects of business policy the attempt to furnish similar detail sometimes results in assertion of the obvious. This is relieved, however, by numerous illustrations drawn from the author's rich knowledge of the experience of U.S. firms.

On the whole the book is a good reference manual for persons actively engaged in trade, but it is not of much interest to economists or general readers. Much of the book bears a marked resemblance to the *Foreign Trade Handbook*,[1] although the latter is much more comprehensive.

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[1] E. E. Pratt, *Foreign Trade Handbook*, 3rd ed. (Chicago, 1952).

Industrial Organization; Government and Business; Industry Studies

Demokratie und Monopol in den Vereinigten Staaten von Amerika. By THEODOR KUHR. (Bad Nauheim: Vita-Verlag. 1954. Pp. 172.)

A book on American antitrust problems written by a German for Germans provides an opportunity for American students "to see ourselves as others see us." The book is also of interest as a sample of German academic thinking in the field of competition and monopoly.

The author is a long-time advocate of vigorous antitrust policies. His present work is a revision of one that appeared in 1934, and he has written extensively on monopoly problems. While he enjoys the intellectual companionship of the small school of German "neoliberals," he must find life frustrating in the traditional stronghold of "protrust" policies, where the steel and banking combines, so laboriously broken up by the allies, are now reconcentrating apace, and antitrust legislation, after years of debate, has risen to the dizzy heights of making *some* monopolistic agreements *unenforceable* in the courts.

Kuhr bases his opposition to monopoly on "Christian natural law" from which a respect for freedom and equality is said to flow. He attributes the vigor of American antitrust policy (which he wishes the Germans to emulate) to the British common law tradition and the legislative role it assigns to the judge, whom he assumes to be, typically, a member of an elite imbued with the spirit of "Christian natural law." Conversely, the absence of effective antimonopoly policy in Continental Europe is attributed to the tradition of Roman law, and the subordinate position of the judge as a mere interpreter of statutes.

These legal-philosophical reflections occupy only a few pages in the first and last chapters of the book. The bulk of it is devoted to a description and discussion of the administration of the United States antitrust laws. The discussion is based on secondary sources, and the criteria governing the selection of cases and the distribution of emphasis are not easy to detect. Nearly 30 pages, out of 75, are devoted to resale price maintenance, but of these only three paragraphs (plus some footnotes) to the Miller-Tydings Act and its aftermath, which is pushed aside as conflicting with the "logically consistent" stream of judicial decisions that are discussed in detail.

In the following chapter there is a confused discussion of cut-throat competition and oligopoly, followed by a note on the evils of price rigidity and a review of statistical studies (all American) which are interpreted as suggesting that the largest firms do not have the lowest costs.

This attempt to teach the German academic champions of monopoly the error of their ways is to be commended. It is unfortunate, however, that the success of the venture is marred by a less than adequate command of economic history, economic theory and statistics, and (perhaps inevitably) an insufficiently critical approach to the secondary sources that are used. A few examples will illustrate these shortcomings.

The economic superiority of the United States over Europe is ascribed "primarily" to its prompt response to the threat of monopoly (p. 31). The

author's tendency to overestimate the economic impact of judicial antimonopoly pronouncements leads him to say of the English common law tradition that, contrary to the claims of Marxism, "an idea, namely that of equality, determined the method of production through the centuries" (p. 156).

Competition is said to depend on the existence of cost differences, and under conditions of oligopoly competition breaks down because there will be less difference in costs among a few large firms than among a large number of small firms (pp. 68, 123–25). Kuhr also appears to be unaware of the distinction between (Mrs. Robinson's) imperfect competition and oligopoly (p. 124). In the discussion of price rigidity no account is taken of the fact that the receipts of firms practicing price rigidity can be sources of effective demand.

In support of the claim that the development of the rule of reason in merger cases was followed by "a growth of the concentration movement" (it is not made clear whether this means increasing concentration or more mergers) Kuhr cites figures illustrating high (but not increasing) concentration, states the number of firms bought or merged from 1940 to 1947 (with no comparative figures), and mentions the reduction in the number of firms between 1941 and 1943 (due, of course, to the war) with no reference to the subsequent increase. There is no reference to the statistical studies that have cast grave doubt on the thesis of increasing concentration (pp. 59–61).

On the subject of the optimum size of firm the author reports that "by far the most important publication" is the Federal Trade Commission's study on the "relative efficiency of large, medium-sized and small business" (the famous TNEC Monograph No. 13) which is discussed in detail without reference to the severe critiques of its methods that have been published.

In spite of the instances of loose reasoning and even some confusion, the book appears to be an improvement on much of the discussion that has surrounded the German antimonopoly bill. Kuhr has set himself a task that could have been done better, but one should be gratefully surprised that it was done at all.

G. Rosenbluth

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The Metropolitan Transportation Problem. By Wilfred Owen. (Washington: The Brookings Institution. 1956. Pp. x, 301. $4.50.)

Widespread concern with the problem of urban traffic congestion and other aspects of urban transportation makes the appearance of this volume an especially welcome event. Although urban transportation has been extensively discussed in both technical and popular periodical literature and in various specialized studies, the present volume, so far as the reviewer is aware, is the first to present a comprehensive and integrated analysis of the subject from the standpoints of transportation economics, public finance, and city planning.

In an introductory chapter the author points out that the problem of urban traffic congestion antedates the automobile age, and he holds that the

"Basic causes appear to be excessive crowding of population and economic activity into small areas of land and the disorderly arrangement of land uses that has maximized transportation requirements" (p. 8). Paradoxically, advances in transportation have made possible this urban concentration and the latter now threatens to strangle the transportation system which made it possible. "Transportation has created many of the conditions that people strive to escape, but it has also provided the means of escaping them and therefore the means of avoiding solutions. And it has transported slums to the suburbs" (pp. 24–25).

Evidence of failure to adapt to the heavy dependence upon private automobiles for transportation in urban areas is found in the tardy and limited recognition of the fact that controlled-access highways are necessary for the safe and expeditious movement of heavy traffic; in the permitting of "ribbon" commercial development along main highways approaching urban areas, which has resulted in the creation of blighted areas and in making difficult or impossible the necessary future enlargement of the highways affected; and, in many states, the disproportionately small share of state highway funds allocated to improvements in urban areas. The generally poor financial condition of the urban transit industry is said to arise largely from the fact that although the total volume of transit business has fallen sharply since the second world war the great bulk of the drop has been in off-peak hours, thereby intensifying the already serious peak-hour problem. The conclusion is reached that efforts to improve urban transportation conditions have had only limited success because: (1) there has been no clear understanding of the relative roles which should be played by public and private transportation respectively; (2) sufficient funds cannot be obtained under current methods of finance; (3) no organizational arrangements have been established which have the necessary geographical coverage and which also provide for unified control of all types of transportation facilities within an area; and (4) the problem of congestion has been attacked primarily by efforts to enlarge facilities, with inadequate attention to controlling the demand for such facilities.

Owen maintains that the respective roles of automobiles and public carriers in urban transportation are to a large extent complementary. "The urban transportation problem is in reality several different problems that vary in time and space. The advantages and disadvantages of public carrier and automobile transportation vary according to these differing circumstances" (p. 163). On the one hand, he concludes that on the basis of relative cost and service characteristics "travel requirements and consumer choice will continue to favor the automobile" (p. 163), and that "in general the problem is motor transportation, and increasingly automobile rather than public carrier transportation. Neither economic analysis nor transportation history suggests a return to public transportation on a scale that would be decisive" (pp. 252–53). However, public carriers will "continue to be an essential part of the transportation system in large metropolitan areas. . . . The principal task of transit will be to absorb home-to-work travel peaks. . . . Public transportation will continue to play an important role in the older central business districts, and along high-den-

sity, home-to-work travel routes close to the center. In these circumstances, the limited capacity of downtown highway and parking facilities in major cities will continue to make extensive use of the automobile impossible at the peak" (p. 253). For mass transit, busses operating in separate lanes on controlled-access expressways are favored against rail facilities. "The bus avoids the high cost of an exclusive right-of-way, and it can serve essentially the same transportation patterns established by the automobile" (pp. 253–54).

With respect to the question of financing urban transportation the key issue is said to be that of subsidy versus self-support. The latter alternative is favored, primarily on the ground that municipalities usually do not have the resources to support transit out of general tax revenue and secondarily because user charges can serve to control the character and amount of transportation service demanded. Owen favors revision of transit fares so as to secure more adequate revenue from long-haul and peak-hour riders; higher parking charges to control downtown congestion; and the use of toll financing on urban expressways, both to insure revenues sufficient to provide the necessary facilities and to minimize nonessential peak-hour traffic. The interesting suggestion is made that the revenues from all forms of urban transportation be pooled and that a portion of the highway revenues be used to support improved peak-hour transit service, on the ground that the standby costs of the transit system should be borne at least in part by automobile users who resort to transit facilities only occasionally and at peak periods. Concluding chapters point out the need for unified control of all forms of urban transit, for areas of authority coterminous with metropolitan areas, and for community planning to check both overconcentration of population in urban centers and the excessive sprawl in suburbs which has created slums and blighted areas. The relevance of this last point to national defense is also discussed.

The volume contains a number of excellent photographs and there is also an appendix containing a comprehensive collection of statistical material, some of which is not easily accessible elsewhere. On the other hand, there is no bibliography, and the numerous footnote references fail to include the information which would enable interested readers to secure items not obtainable through ordinary channels.

This is a well-written, timely, and important study which should prove to be of great interest to students of transportation and of city planning, and to many laymen as well.

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Public Control of Economic Enterprise. By HAROLD KOONTZ and RICHARD W. GABLE. (New York: McGraw-Hill. 1956. Pp. xii, 851. $7.00.)

The authors of this book describe and analyze all aspects of governmental economic regulation in the United States, not only the traditional regulation familiar in the transportation and public utility industries and in the enforcement of the antitrust laws, but also governmental action to supervise banks and investment trusts, to establish standards for security issues

and security and commodity exchanges, to influence the labor bargain, to aid business and agriculture, to promote economic stability, and even to manage the economy in war emergencies.

Government intervention in economic affairs is warranted, according to the authors, when it increases total economic freedom or serves to safeguard the functioning of the economy, as with respect to full employment, stable prosperity, and national defense. *Public Control of Economic Enterprise* deals with the "rationale, legal bases, techniques and effects of control, with as much attention as possible to the broader implications of control" in each of the areas of government intervention which the authors discuss.

Transportation, public utilities, antitrust enforcement, and labor are given somewhat fuller historical and topical treatment than is accorded to the other areas of control. The transportation section begins with a survey of the development of patterns of control and thereafter examines the regulation of rates, service, labor, finance, and combinations. This section deals primarily with the railroads, but some attention is also given to trucks, the airlines, and water carriers. A very useful chapter reviews recent critiques of our national transportation policy, especially with respect to inconsistencies between regulation and promotion, the proper role of competition in a regulated industry, and management's opportunities to achieve efficiency. The pros and cons of such fundamental policy recommendations as regional transportation monopolies are weighed, but the authors offer no personal solution for the transportation problem.

While transportation regulation illustrates the pre-eminence of federal control, the regulation of public utilities shows a pattern of state regulation supplemented and supported by federal controls. "The results of public-utility rate regulation have been somewhat better than the results of regulating carrier rates, if the financial stability of the operating companies is used as the measure." But the authors question the propriety of this measure in view of the noncompetitive status of public utility companies.

Maintaining competition presents four aspects of monopoly and the antitrust problem—the decline of competition, attacks upon monopoly and restraints of trade, regulation of competitive practices, and special areas of trade regulation. The chapter on this last aspect gives attention to trade associations, resale price maintenance, patents and copyrights, basing-point pricing, and competitive practices relating to foods, drugs and cosmetics. The evidence of a decline in competition is, in general, well illustrated, but space does not permit a development of the circumstances under which the enumerated restraints impair competition. The discussion of the attack upon monopoly and restraints and the regulation of competitive practices is necessarily developed in terms of leading court cases. The cases selected are appropriate, but their compressed presentation allows little scope for examining the multiple economic and competitive issues which arise in even the simpler cases. Incidentally, the Federal Trade Commission has not yet had an opportunity to rule on the legality of Pillsbury Mills' acquisitions of Ballard & Ballard and the Duff Baking Mix Division of American Home Foods, and the action of the Department of Justice relative to the proposed merger of Bethlehem Steel Corporation and Youngs-

town Sheet & Tube Company was only an informal advisory opinion (p. 369).

The chapters on government regulation of banks, security issues, and security and commodity exchanges offer primarily analyses of evolving legislative patterns.

The discussion of government controls in the labor field is one of the strongest sections of the book, dealing with such matters as child labor, fair employment practices, wage and hour regulations, state and federal, health and safety regulation, unemployment insurance, collective bargaining, and regulation of management and labor relations. There are good discussions of the social and economic problems of labor and good appraisals of public policy in relation thereto.

A discussion of General Aids to Business, in addition to making reference to basic legal and monetary institutions, considers special services to particular industries (shipping, mining, etc.) and financial aids in the form of tariffs, credits, and subsidies. The historical review of government aids to agriculture undertakes no extended excursion into the economics of the farm problem. Government ownership of business is discussed in relation to the more important federal, state and local enterprises and the advantages and disadvantages, in this area of perennial debate, are impartially marshalled. The authors have performed a very useful service in showing how the government corporation, which was developed to provide responsible management for public undertakings, has, in the federal field, been reduced to general impotence by successive legislative restrictions.

Wartime controls and the Employment Act of 1946 provide the basis for a suggestive consideration of the general problems of over-all government management of the national economy.

Public Control of Economic Enterprise offers for the college course in the economics of government regulation a comprehensive coverage of broad and diverse fields, a good historical perspective for the American scene, and a balanced consideration of the policy issues inherent in government action in economic affairs. Because the field is so vast, both in extent and in depth, all-inclusive textbook treatment, even where analytical, raises fundamental questions about our teaching of economics. Is it possible to give students meaningful training in economic analysis through the medium of complex cases discussed in a sentence or in a paragraph? Does public economic regulation conform to such principles and standards as to provide a unifying factor in these diverse economic areas, such as justifies confining students to other peoples' thoughts, or should students in such controversial areas be compelled to analyze problems for themselves and to arrive at their own judgments, even though these judgments be imperfect? Would the would-be economists mature more certainly and more surely if exposed to larger doses of the complex problems in particular areas of government intervention in economic affairs? The very fact that the authors have fulfilled their assignment skillfully and comprehensively makes the reader aware that perhaps the assignment—and the teaching needs which it serves—should be re-examined.

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Land Economics; Agricultural Economics; Economic Geography; Housing

Resource Productivity, Returns to Scale, and Farm Size. Edited by E. O. Heady, G. L. Johnson, and L. S. Hardin. (Ames: Iowa State College Press. 1956. Pp. xi, 208. $3.50.)

Covering some 200 lithoprinted pages, this book contains the proceedings of a conference called by the North Central Farm Management Research Committee on Farm Scale and Resource Productivity in Chicago, October 19 and 20, 1954. Twenty-five authors contributed two introductions, 22 papers, and 7 discussions.

Primary emphasis is on the estimation of production functions (usually Cobb-Douglas) and their subsequent use in farm budgeting, linear programming, estimating marginal productivity and elasticity coefficients, determining optimum size of farm firms, and comparing actual with optimal farm organization. Topics covered include relevant aspects of economic theory, problems arising from managerial processes, institutional considerations, the selection of algebraic form of function, some sampling considerations, the specification of statistical model (single equation *vs.* simultaneous equations), and tests of significance.

Additional topics include some history of farm budgeting in the United States, research in farm size based on farm records and surveys, and a small section on individual and group values in farm management analysis.

The stated objective of this publication is "to review some of the current thinking and research in the measurement of resource productivity in farm production" and "to stimulate and aid productive thinking and research in this increasingly important area." It has achieved its first objective and is likely to achieve the second, also. Much of the material presented, particularly by Heady and Johnson, is a restatement of material already available in their previous publications. This repetition was necessary, however, for the book to reflect "current thinking and research" in this area. On the other hand, a few papers present new techniques and variations of old techniques that have not been published previously.

The pages-per-article ratio of 6.5 already indicates that many topics are not adequately covered. Probably it is unfair to single out the eight-page chapter on the use of simultaneous equations to estimate production functions. The author would have been better advised to use the space allocated to him to explore more fully the relationships between the single-equation and simultaneous-equation approach and the conditions which make the former a special case of the latter rather than to introduce the technical jargon associated with computational details. That such an exploration was needed is illustrated by the following chapter which seems to imply that the simultaneous-equation method should only be considered (and then rejected) for multiple-enterprise farms.

Fortunately, here as well as elsewhere in the book, brief treatment is partially compensated by extensive useful references. Many readers will be stimulated by these appetizers to stay for dinner. An additional important

reference in the area of simultaneous equations is *A Statistical Study of Livestock Production and Marketing* by Clifford Hildreth and F. G. Jarrett.

Several statistical procedures are illustrated or proposed with insufficient logical justification. On page 75, Heady derives what seem to be confidence-interval estimates of total returns from conservation (beyond those currently attained) as a function of total capital investment. His method is to replace regression coefficients in the estimated function by their "upper and lower fiducial limits at a 5-per cent level of probability." The constant term, on the other hand, is not treated as a random variable, and the covariance between regression coefficients is ignored.

On page 95, Johnson proposes that "purposive sampling" be used, that farms be selected "in such a way that the intercorrelations in the factor-factor dimensions are as near zero as possible and to maximize the variances in the factor dimensions. . . . " While it is true that stratification is a useful tool in developing more powerful estimating procedures, this does not mean that random sampling within strata is no longer advisable.

JAMES N. BOLES

University of California, Berkeley

Labor Economics

Cross Purposes in Wage Policy. By R. G. HAWTREY. (London and New York: Longmans, Green and Co. 1955. Pp. x, 148. 7*s* 6*d*.)

Mr. Hawtrey's book is close to being a popular presentation of the problems of monetary and wage policy in postwar Britain, although much of what he says has a general relevancy. The analysis is sensitive and subtle, at the same time eschewing theoretical detail, and the conclusions emerge with clarity. As one might expect the presentation is a stylistic model, but as one might not expect the book is presented in inexpensive paper-bound form.

The author's central point is that wage policy cannot be considered in a vacuum. Wage policy, domestic monetary policy, fiscal policy, and foreign exchange rates are all interdependent. The nature of their interdependence is unraveled in a critical account of British postwar policies in these areas. While British wage policies of the time receive their share of adverse comment, the principal barbs of the book are directed toward the monetary policies, defined broadly, that made those wage policies possible and even encouraged their adoption.

Hawtrey argues that the British devaluation in 1949 was really unnecessary in that British prices were already sufficiently low. Although domestic wages had risen, despite official exhortations, the compensating effect of the increase in American wages was overlooked. The devaluation accentuated overemployment, which rigorous monetary policy and less inflationary government borrowing would have restrained.

Devaluation, however, was followed by domestic wage increases which would have corrected the disequilibrium implicit in the new exchange rate had not American wages been rising at the time. Government, trade-union,

and arbitration officials have all attempted to hold down wages but, in the face of rank-and-file pressure, were effective mainly in 1949 only. The pressure for higher wages will continue as long as monetary policy encourages an expanding money supply.

The 1949 devaluation committed the country to substantial wage and price increases, made all the greater by subsequent price rises in America. Lax credit policy failed to restrain these increases and excess government spending added to them.

> . . . monetary policy and fiscal policy combined could put an end to the pressure for rising wages which excess spending causes. Delicate handling would be needed to keep the middle path of full employment and to avoid any lapse either into inflationary over-employment or into deflationary unemployment. (Pp. 131–32.)

Wage policy is thus viewed as essentially secondary to, *i.e.*, made in a framework of, monetary and fiscal policy.

As part of the development of his main theme Hawtrey makes a number of interesting observations on such questions as wages under competition, the cost of living and wages, wages and productivity, equal pay for equal work, etc. A very complete index is provided.

Francis S. Doody

Boston University

Labor's Wage Policies in the Twentieth Century. By James S. Youtsler. (New York: Twayne Publishers, for Skidmore College. 1956. Pp. 344. $5.00.)

This study is a further contribution to the growing literature on wage determination. The author sides with those economists who resist the effort to explain wages mainly in terms of conventional economic theory, and who prefer to approach the subject through the study of institutional behavior. He has chosen for his research a re-examination of trade union wage demands and of the institutional factors which have had some influence in their formulation. Although the study touches on a broad range of trade-union interests, the author's primary concern is to call attention to the social and ethical considerations which affect trade-union wage behavior, and in particular to stress the influence of the "role of need."

The book is divided into five parts. The first is a short and critical review of conventional wage theories. The second and third parts are devoted to a chronological study of labor's wage demands from 1900 to 1930, and of the wage policies of the American Federation of Labor and the Congress of Industrial Organizations from 1930 to 1953. The fourth and most substantial part of the work is a review of the wage history of a number of AFL and CIO affiliated unions[1] from the time of their inception to the present.

[1] The unions whose policies are described are the following: International Ladies' Garment Workers' Union; The Amalgamated Clothing Workers of America; International Brotherhood of Pulp, Sulphite and Paper Mill Workers and International Brotherhood of Paper Makers; United Steelworkers of America; International Union United Automobile, Aircraft and Agricultural Implement Workers of America; The Textile Workers Union of America; United Electrical, Radio and Machine Workers of America; and International Union of Electrical, Radio and Machine Workers.

In the course of his work, the author has assembled a very substantial body of data drawn from many sources. The descriptions of labor's demands have been painstakingly culled from trade union publications and convention proceedings, arbitration and mediation decisions, and the records of collective bargaining negotiations. The author has also drawn on the findings of many of the more prominent investigators in the field, such as Dunlop, Millis and Montgomery, Ross, Levinson, Slichter, and Shultz and Myers, and has included a considerable amount of statistical material relating to wage rates, real earnings, and the extent to which workers have shared in productivity and national income.

The author has given a detailed and interesting account of trade-union wage strategy in the face of changing circumstances. He has included under wage policy not only the unions' striving for higher wages, but also the attempts to secure shorter hours, to stabilize wage conditions, to set suitable wage standards, to extend fringe benefits, to achieve greater "industrial democracy" through collective bargaining and union-management cooperation, and to further the movement's social objectives through legislation. The policies of the AFL and CIO are set forth against the background of broad economic and social change and reveal the extent to which these bodies are concerned with over-all issues. The policies of the individual unions, on the other hand, are shown to be more responsive to conditions in their respective industries.

The author has also included his views on a number of important questions suggested by his materials. On the debatable subject of whether trade unions have succeeded in raising real earnings for their membership, the author argues that the stronger unions have had an important influence. It is also the author's opinion that trade union activities taken as a whole have not adversely affected prices or employment, although he acknowledges that the gains of organized labor since 1946 may mave been partly at the expense of fixed-income groups. The union wage policy of equalization of wages on an industry-wide or regional basis is considered by the author as a step leading to increased union-management cooperation. The author also discusses the implications of the guaranteed wage from the point of view of its likely impact on the worker and the labor movement, the employer and the economy.

The descriptive material is well presented, but in the reviewer's opinion the author does less well with his analysis. Of the many factors which have influenced trade-union decisions on wages, the emphasis throughout is on the workers' "need." Unfortunately, the concept of need is nowhere defined, and the author's criteria of need seem to merge with more abstract considerations of what is a fair and equitable share. Moreover, while the data is highly suggestive that unions do give consideration in their demands to factors of workers' need, cost of living, and a more equitable sharing in national income, the author gives no clue as to how the influence of these factors can be evaluated. The reader is left to weigh the evidence for himself, and to draw his own conclusions.

Although the book raises many interesting problems, it is essentially a survey. The author summarizes his materials skilfully, and has applied his

critical judgment to a number of important questions. The author himself finds, however, that the "amorphous mass of material and the length of the period covered in the study" make it difficult to present conclusions. The reviewer sympathizes with the author's dilemma, but cannot help regretting the absence of a more well-defined analytical framework.

AARON W. WARNER

Columbia University

Emergency Disputes and National Policy. Edited by IRVING BERNSTEIN, HAROLD L. ENARSON and R. W. FLEMING. (New York: Harper and Bros. 1955. Pp. xi, 271. $3.50.)

The fifteenth in a series of the Industrial Relations Research Association publications, this book was written some eight years after the enactment of the National Labor Relations Act of 1947. This law, with its controversial Title II, National Emergency Provisions, came into being some two years after the 1945–46 postwar strike wave. Because of the cooling-off effect made possible by these intervening years, as well as by the almost assured unity of the American Federation of Labor and the Congress of Industrial Organizations, this dynamic study came into being at a most opportune time.

In their introduction, the editors define a national emergency dispute issue as "A nation-wide and industry-wide stoppage in a basic industry" which may "shut off goods or services vital to the health and safety of millions of people." Despite this easily formulated definition, the editors are quick to point out that the "emergency problem provides an arena for a set of irreconcilable convictions" and "like most great policy questions in a democratic society, it is more readily framed than resolved." This is an agreement to disagree, and seems to be the only thread of general concurrence that is reiterated in each of the fifteen chapters, each one written by an expert, and each on one or the other side of the fence, or even perched comfortably right on top.

The first part of the book, which is divided into three parts, answers the question, What is a national emergency dispute? G. H. Hildebrand discusses "An Economic Definition of the National Emergency Dispute," in which he analyzes the industries which now have—or haven't—a potential to fall into this emergency category. Despite certain qualifications, he concludes that "optimism about the relatively small dimensions of the problem of national emergency strikes still seems warranted for the present period. . . . " Irving Bernstein, who writes about the "Economic Impact of Strikes in Key Industries," notes that "only three of fifty-one highly unionized industries in the United States have a national emergency potential: coal, steel, and railroads" and that the "results leave little doubt that the national emergency problem, in so far as it is economic in character, has been much exaggerated." H. L. Enarson, who describes in detail the steel strike of 1952, indicates that there is more than the economic side to an emergency dispute, by detailing the political and public-opinion aspects of the problem. Benjamin Aaron concludes the first part of the book by

disposing of the widely held misconception that such a dispute is a challenge to the authority of either the government or of other groups.

Four authorities discuss the experience under the emergency provisions of the Taft-Hartley Law in the second part of the book. F. M. Kleiler examines the "troubled industrial relations in the years immediately preceding 1947." A. J. Goldberg and Jack Barbash, who describe how labor views the national emergency provisions, give certain criteria of values and techniques, in the light of which they indicate their own approach to the emergency problem. A. R. Heron, while insisting that there "is no such thing as an industry view," gives certain criteria as the basis for his conclusion that "it is probable that most people in management look favorably on the present emergency provision." F. C. Pierson elaborately evaluates the national emergency provisions and proposes certain changes, but concludes that "the crux of the matter is the spirit in which the law is administered."

The concluding section of the book discusses the elements of a national policy. W. W. Wirtz, who discusses a wide choice of procedures for a solution of the problem, urges the establishment of "a pattern for flexible approach to emergency," rather than "a single invariable set of compulsions." J. K. Mann describes the "special disputes machinery devised for the atomic energy field" and examines "its present relation to generalized national labor policy." R. W. Fleming, in his "Search for A Formula," discusses as proposals for the handling of emergency strikes the statutory strike, compulsory arbitration, and two specific situations, the pattern under the Virginia and Massachusetts laws, and emergency panels for specific industries. Archibald Cox describes experience with seizure in emergency disputes, and in appraising its future possibilities concludes that "seizure alone would seldom be an effective solution" but that "it appears to have considerable psychological value." Murray Edelman concludes this section as well as this most valuable book by discussing the part to be played by the different branches of government, executive, legislative, and judicial. In Appendix A, C. M. Rehmus discusses the twelve occasions in which the emergency machinery had been evoked up to the time of the writing of the book. Appendix B reproduces Title II of the National Labor Relations (Taft-Hartley) Act of 1947. These are very definite assets of the book.

This volume is a valuable contribution towards the formulation of a more applicable and widely accepted labor policy.

C. Morris Horowitz

Brooklyn College

Lohnhöhe und Beschäftigung. By Wilhelm Krelle and Heinz Haller. (Berlin: Duncker & Humblot. 1955. Pp. 79. DM 6,60.)

In this, the eleventh of a series of economic studies issued since 1949 under the aegis of the *Theoretische Ausschuss des Vereins für Sozialpolitik* (Theory Committee of the Society for Social Policy), two of modern Germany's outstanding academic economists present somewhat contrasting, yet complemetary essays in wage theory. This slim volume also contains

the essence of the discussions provoked by the reading of these essays at two committee meetings, in January 1953 and September 1954.

In the first of the essays, Wilhelm Krelle is concerned with the influence of wage changes on prices and employment in the individual firm. An almost nostalgic reference to an earlier state of theory in which all such questions seemed settled by application of the marginal analysis of J. B. Clark and Böhm-Bawerk, correctly sets the stage for what follows. Essentially, despite protestations to the contrary, Krelle's contribution represents a modernization of an old methdology. In answering such questions as the impact of wage changes in a firm upon employment in that firm, upon the price of the end-product, upon factor prices, or upon the prices of substitute and complementary products, his major departures from neoclassic doctrine are the introduction of many more variables and the replacement of the simpler mathematical techniques of incremental analysis and simple geometry with more sophisticated models utilizing differential calculus and modern geometry. Aside from the aesthetic satisfaction provided scholars, however, Krelle's contribution is as arid for decision-making in the firm, at least from a positive point of view, as that of J. B. Clark. In this, Krelle's performance is no different from that of many American model-builders whose stochastic equations offer mental exercise but no guides to policy. His conclusion, in agreement with Arthur Ross and Clark Kerr, that there is no symmetry in the operation of a particular wage change, is supported by his mathematical demonstration. However, a more logical case for the same conclusion is made by Lloyd Reynolds in his textbook, *Labor Economics and Labor Relations* with less elegance but more persuasion.

Of greater value is Krelle's argument that the theoretical apparatus to date, because of its static nature, can offer only a means of obtaining a determinate answer to the why of what already has happened. The prediction of consequences of a wage change under specified circumstances, according to him, will have to await the evolution of a dynamic theoretical apparatus.

In contrast with the rigorous development and narrower focus of Krelle's paper, that of Heinz Haller is philosophical, discursive and broad. No attempt is made by Haller to present theorems, principles or laws. Instead, he is concerned that economists take into account the realities that they too often have treated as temporary frictions. No effort is wasted in the construction of an incomplete model of the wage-employment relationship. Recognizing that timber must be transformed to lumber before a house may be built, Haller shapes a number of planks for use by examining persistent features of contemporary economic life which affect wage-setting and which determine the reactions of the economy to the wage levels set.

Woven into the discussion are numerous interesting comments on various aspects of the work of Keynes, Lange, Patinkin, Pigou and Hansen among others. These comments, as well as an unashamedly partisan argument for a doctrine of "social partnership" in industrial relations, are given as much prominence as any attempt to contribute to wage-employment theory. As a result, Haller's essay merits attention more as a critique of ex-

tant theory from a special point of view than as a contribution to economic theory.

On the whole, this publication, as well as the others in the series issued under the same auspices, should prove of particular interest to readers familiar with that trend in German economic thought, temporarily arrested in the Third Reich, which reflected the effort to give a broader social base to theory and thereby influence public policy. These publications represent the renaissance of the tradition of the seemingly dissimilar yet basically associated social-policy approach of F. C. Müller-Lyer, Fritz Karl Mann, Wilhelm Lexis and the like, and are indicative of a resurgence of German economic humanism.

LOUIS R. SALKEVER

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Industrial Relations in Australia. By KENNETH F. WALKER. (Cambridge: Harvard University Press. 1956. Pp. xviii, 375. $7.50.)

Interest in labor management relations in Australia has understandably been focused on its unusual sixty years experience with compulsory arbitration. Has this system protected the community against economic loss and inconvenience resulting from strikes? Has it contributed to productivity? What effect has it had on the unskilled and "least-well-off" workers?

Kenneth F. Walker, professor of psychology at the University of Western Australia, with ten years' practical experience in the Australian Deparment of Labour and National Service, examines the social, economic, technological, and political factors involved in this bold experiment. His book is an informative, well-written and up-to-date addition to the considerable list of books and articles on the subject.[1]

Case studies of seven industries—furniture, metal mining, meat slaughtering, coal mining, sheep raising, metal trades and stevedoring—comprise a major portion of the book and illustrate the varied pattern of industrial relations under a system of compulsory arbitration. For example, work stoppages are nonexistent in furniture but severe and frequent in coal mining and stevedoring. Mutual acceptance by union and employers is complete in metal trades and sheep raising but absent in stevedoring and coal mining. The role of an industrial tribunal is continuously important in meat slaughtering and coal mining, vital in sheep raising, important in stevedoring and of little importance in furniture and metal trades.

Walker suggests nine proximate determinants for this varied pattern: (a) effectiveness of direct action; (b) extent to which the union attempts to penetrate managerial functions; (c) stability of organization among employers and employees; (d) nature of the work and circumstances of employment; (e) economic horizon of employees; (f) methods of management;

[1] For a recent bibliography see D. W. Oxnam, "Industrial Arbitration in Australia: Its Effects on Wages and Unions," *Indus. Lab. Rel. Rev.*, July 1956, IX, 610–28.

(g) common social and industrial background and interests of employers and employees; (h) personalities of union leaders, management and employers' association staff; and (i) ideological and political objectives.

The analysis, despite Walker's expertness and capability, suffers from vagueness. He has endeavored to view industrial relations as the interaction of a system of forces operating in a social framework at a particular time and place. Unfortunately the methods of measurement available for the interdisciplinary approach involving all of the social sciences are still inexact and the tools of investigation are blunt. Walker recognizes the importance of testing the strength of the various forces and their functional relationships, but the means available are inadequate to the challenge. His major generalization, however, may turn into a scientific bonanza. He concludes that the problems of productivity and work stoppages might be more carefully delineated by a complete knowledge of the market conditions and technology of various industries.

Despite the very general nature of the results from existing and primitive tools of analysis, Walker's book supplements the information available from other sources. Compulsory arbitration in Australia has been a stimulus to the organization and improvement of working conditions of poorer workers. Strikes are frequent but short. Australia has an unusual proportion of activities that are centers of conflict the world over, particularly in coal mining and water transportation. Real wages have paralleled productivity, although cause and effect are not ascertainable. The influence of strong unionization and a labor party are still imponderables.

Walker's study was not intended to arrive at a conclusion as to whether the United States should adopt compulsory arbitration. Yet the question inevitably comes to mind in the light of this most recent full investigation in another country. Today, nine out of ten union agreements in this country provide for some form of arbitration. Should these arrangements be formalized and made applicable to all? The general consensus of American experts appears to be that compulsion would not work here. When arbitration was made compulsory in Kansas in the 1920's it failed; both unions and employers opposed the law and the United States Supreme Court held the law unconstitutional.

MAXINE YAPLE WOOLSTON

Bryn Mawr College

Population; Welfare Programs; Standards of Living

Social Security and Public Policy. By EVELINE M. BURNS (New York: McGraw-Hill. 1956. Pp. xvi, 291. $5.50.)

The main problems of a social security program can be stated very briefly. Granted the policy objective of providing a minimum standard of living for all citizens, the following questions have to be put: What should this minimum be? Should state action be confined to helping individuals themselves to reach this minimum by some redistributory device, *e.g.* full employment, or should it extend to state provision of social services?

Granted state intervention, how should it be financed? How far will particular methods of finance conform or conflict with other government policy objectives? Professor Burns has not provided her own answers to these questions, but she has ably summarized and discussed the answers provided by administrators, businesses and trade unions, and economists, not only in the United States, but in a considerable number of other countries with widely differing social security programs. The result is a first-rate and exceedingly readable text aimed at the intelligent student; in fact, it is the only general textbook of its kind, and it is a welcome relief to find such a book among the host of dreary summaries of the history of social security legislation which pass for inclusion in academic courses.

The book is divided into four parts. In the first part, the author considers what problems arise in fixing the rate of social security benefits and what conditions should govern their receipt. Obviously these problems will be solved in very different ways in different economies, depending on the amount and distribution of real income, the prevailing causes of poverty, and the social attitudes of the public to these conditions. "Solved," however, is hardly the right word, as is clear from Mrs. Burns' particularly enlightening chapter on income guarantees and the willingness to work, because the solutions are hampered by the peculiar difficulty of defining fundamental concepts, such as "need," "eligibility" and "malingering." How right she is to stress the lack of precise information about the effects of social security on economic incentives, and the need for continuous research, granted the ever-changing economic conditions in which social security programs are bound to operate.

Part II of the book brings us to the consideration of the sources of income inadequacy and the forms of state intervention used to prevent poverty. Always the general issues are put before the reader, and he should be particularly impressed by the author's restrained treatment of the problems encountered in instituting a public medical service. The reviewer notes with satisfaction the parallel drawn on page 133 between the veteran's health program in the United States and the hospital service in the United Kingdom!

Part III, on the financing of social security programs, contains some shrewd analysis of the inevitable conflicts which arise between social-security aims and other government policies. To many foreign readers the sections on the economics of experience-rating and the problems of intergovernmental cost-sharing will be of particular interest, while the discussion of the perennial questions of insurance taxation (for so it must be regarded) and of reserve *vs.* current financing will provide a useful link between a course on social security and one on the economics of public finance. The reviewer did find that Mrs. Burns' eclectic approach served her less well in the discussion of the incidence of social security taxes. It would have been useful to have distinguished between short- and long-run incidence of these taxes, and to have said something of the difficulties of arriving at any general conclusions which are independent of the particular budgetary assumptions made. The reviewer would also have liked to have

seen some discussion of the economic problems facing social security schemes in countries with ageing populations. The work concludes with a short section on the administrative problems of social security.

It only remains for the reviewer to congratulate the author for producing a work which will attract the student to a neglected but important aspect of applied economics.

ALAN T. PEACOCK

University of Edinburgh

American Social Legislation. By JOHN D. HOGAN and FRANCIS A. J. IANNI. (New York: Harper & Bros. 1956. Pp. xvi, 713. $6.50.)

The role of social legislation in promoting the well-being of both society and the individual has been obscured by the continuous controversies as to the wisdom and desirability of certain legislative measures and their implementation. Social legislation is often the result of social change. It is, however, also a producer of important social changes. In this latter respect it serves as a catalytic agent. The authors of this interesting work (also designed as a text) skillfully present a subject of vast import to the United States. Indeed, it would be no exaggeration to state that from the cradle to the grave the average American is now enwrapped in a thick layer of social legislation aimed at protecting him from the vicissitudes of a complex industrial civilization.

Against the background of an analysis of the American social system, social thought and social movements, the authors devote a substantial portion of the book to problems arising from the growing dependence of the average employee. This results from an industrial process which is ever mutable, whose tempo is ever accelerating, and which shows no signs of slackening in the near future. A product of thorough research, the work devotes a great deal of attention to such topics as income security, social insurance and assistance, and labor legislation. It also traces the changing trends in family legislation, including that concerned with marital and parent-child relationships. From the abundant materials made available to the reader, one gains the impression that part of American social legislation is of high quality but that the remainder is characterized by overlapping, confusion, and illogicality.

Although the authors cover their material comprehensively, one noticeable gap concerns the relating of laws to the experience which led up to their passage. In all fairness to Hogan and Ianni, full coverage of this aspect would have required tremendous research. Nevertheless, the authors may not have made full use of available sources of information that shed light on the motivations, pressures, and causes accounting for the passage of specific acts of social legislation. As J. Owen Stalson, in his *Marketing Life Insurance*, has pointed out (p. 314), "laws are generally produced as the result of some immediate agitation by an interested group—those who have been injured, those who seek to create a situation from which they may profit" and by other groups. These other groups include those inspired by humanitarian and altruistic considerations.

Another serious gap is the failure of the authors to analyze the costs of American social legislation. Revenues and expenditures cannot be ignored in evaluating the wisdom of specific measures of social legislation. Are costs rising? What proportion of governmental revenues are devoted to the administration of social legislation? How much more can the taxpayer bear? Is there any limit in sight? The book undoubtedly would have profited from a consideration, in more or less detail, of this growing problem of costs.

On the whole, the work fills the void of textbook material in a field which is fraught with enormous significance for the welfare of the ordinary American. The volume, written in interesting fashion and effective style, should serve as an useful introduction to those interested in pursuing further research in this area.

HARRIS PROSCHANSKY

New York, N. Y.

TITLES OF NEW BOOKS

Descriptive notes accompanying some of the following titles have been prepared by Professor I. L. Sharfman, of the University of Michigan.

General Economics; Methodology

BARRE, R. *Économie politique.* Vol. II. (Paris: Presses Univ. de France. 1956. Pp. 768. 1.660 fr.)
A text prepared specifically for the use of students in *Instituts d'Études Politiques* and candidates for *la licence en droit.* The present volume is concerned with the subject of distribution—in general, in a decentralized capitalistic economy, and in a centralized collectivist economy. The first volume, by André Marchal, appeared earlier this year; but it has not been received.

BILLY, J. *La politique économique.* (Paris: Presses Univ. de France. 1956. Pp. 128.)

BLADEN, V. W. *An introduction to political economy.* Rev. ed. (Toronto: Univ. of Toronto Press. 1956. Pp. viii, 319. $4.95.)

BYE, R. T. AND BARNES, R. R. *Questions and workbook for Bye's "Principles of economics."* 5th ed. (New York: Appleton-Century-Crofts. 1956. Pp. v, 310. $2.75.)

EASTHAM, J. K., ed. *Economic essays in commemoration of the Dundee School of Economics.* (London: Economists' Bookshop, Ltd., distrib. 1955. Pp. 103.)

HALL, E. W. *Modern science and human values—a study in the history of ideas.* (New York: Van Nostrand. 1956. Pp. x, 483. $8.)
"In tracing the achievement of modern scientific method, material has been drawn largely from the histories of dynamics and economics. It was thought wise to take a physical and a social science, and the actual choice in each area was dictated largely by the fact that it was in the chosen disciplines that the new method found its earliest attainment." (From the introduction.)

KNORR, K. *The war potential of nations.* (Princeton: Princeton Univ. Press, for Center of Internat. Stud. 1956. Pp. viii, 310. $5.)
"As a contribution to a theory of war potential, this book intends to explore and clarify the underlying bases of military power, to facilitate estimates of the comparative war potential of nations, and to identify some of the conditions which nations can manipulate in order to bolster their war potential.
"The study is not restricted to economic or industrial war potential. The determinants of potential military power are divided into three broad categories: The Will to Fight, usually called 'morale'; Administrative Capacity; and Economic Capacity. . . . an attempt is made to show how these determinants of war potential interact." (From the introductory chapter.)

KOIVISTO, W. A. *Principles and problems of modern economics.* With *Instructor's manual.* (New York: John Wiley. London: Chapman & Hall. 1957. Pp. xxi, 834. $6.)

MUNBY, D. L. *Christianity and economic problems.* (New York: St. Martin's. London: Macmillan. 1956. Pp. ix, 290. $5.)

PAULSEN, A. *Allgemeine volkswirtschaftslehre.* Vol. I, *Grundlegung, Wirtschaftskreislauf.* (Berlin: Walter de Gruyter. 1956. Pp. 138.)

WHITTAKER, E. *Economic analysis.* (New York: John Wiley. London: Chapman & Hall. 1956. Pp. xiii, 460. $6.50.)

Price and Allocation Theory; Income and Employment Theory; Related Empirical Studies; History of Economic Thought

BIET, B. *Théories contemporaines du profit—essai de micro et macroanalyses.* (Paris: Lib. de Médicis. 1956. Pp. 302. 1.500 fr.)

CARLSON, S. *A study on the pure theory of production.* Reprint of Econ. classics ser. (New York: Kelley & Millman. 1956. Pp. vii, 128. $4.50.)

EISERMANN, G. *Die Grundlagen des Historismus in der deutschen National- ökonomie.* (Stuttgart: Ferdinand Enke. 1956. Pp. xv, 249. DM 25,—.)

FANNO, M. *La teoria delle fluttuazioni economiche.* 2nd rev. ed. (Turin: Unione Tipografico—Ed. Torinese. 1956. Pp. xv, 487. L. 3.800.)

GEHRIG, H. *Friedrich List—und Deutschlands politisch-ökonomische einheit.* (Leipzig: Koehler & Amelang. 1956. Pp. 450.)

JAMES, E. *Histoire sommaire de la pensée économique.* (Paris: Montchrestien. 1956. Pp. 336. 1.320 fr.)

KENDRICK, J. W. *Productivity trends—capital and labor.* (New York: Nat. Bur. Econ. Research. 1956. Pp. 23. 50¢.)

KURIHARA, K. K. *Introduction to Keynesian dynamics.* (New York: Columbia Univ. Press. 1956. Pp. 222. $4.50.)

LINDBERGER, L. *Investeringsverksamhet och sparande—balansproblem på lång och kort sikt.* Swedish Royal Comm. Fin. Dept. 1956 no. 10. (Stockholm: Ivar Haeggströms. 1956. Pp. 266.)

MEEK, R. L. *Studies in the labour theory of value.* (New York: Internat. Pub. London: Lawrence & Wishart. 1956. Pp. 310. $5.)

MUMMERY, A. F. AND HOBSON, J. A. *The physiology of industry—being an exposure of certain fallacies in existing theories of economics.* Reprint of Econ. classics ser. (New York: Kelley & Millman. 1956. Pp. xvii, 215. $5.)

RUGGLES, R. AND RUGGLES, N. D. *National income accounts and income analysis.* 2nd ed. (New York: McGraw-Hill. 1956. Pp. viii, 452. $6.50.)

VAKIL, C. N. AND BRAHMANAND, P. R. *Planning for an expanding economy—accumulation employment and technical progress in underdeveloped countries.* (New York: Inst. of Pacific Relations. Bombay: Vora. 1956. Pp. xiv, 404. $4.50; 20*s*.)

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This study, prepared by a British consulting social-analyst on the basis of his experience since late in 1952 with the Glacier Metal Company, a London engineering factory, concerns itself with the problem of "how to determine the appropriate payment and status for individ-

uals for the work they do." It propounds the theory that the level of responsibility attaching to the holder of any job is centered in the discretion which the individual must exercise therein; that this level of responsibility can be measured with reasonable precision and objectivity; that the maximum span of time during which individuals are required to rely upon their own discretion without having their judgments subjected to review provides such measurement; that the time-span of discretion constitutes the controlling basis of wage and salary demands, irrespective of the type of work involved; that the recurrence of payment disputes springs from departures from this underlying but unrecognized element in the wage and salary structure; and that the instant analysis "might be considered to suggest a possible route towards a systematic pattern of financial reward in relation to the level of work done." While the study reflects a helpful blending of theoretical insight and practical detail, it is submitted by the author as "an interim report," supplementing the earlier and more general report, prepared by the same author and dealing with the same company, which was published as *The Changing Culture of a Factory* (London: Tavistock Publications, 1951).

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This impressive book, with its thoroughgoing theoretical analysis and its large mass of empirical data, encompasses both less and more than its principle title, as set forth above, might suggest. Its subtitle, *The Internal Politics of the International Typographical Union,* specifies expressly that it is a case study of a single trade union; but at the same time its avowed purpose is to explore the factors which impair or support democratic processes not only in all labor unions but in private organizations of all types. The problem of the distribution of power as between such organizations and their members—with the wide acceptance of the so-called "iron law of oligarchy," as developed by the German sociologist Robert Michels, in his *Political Parties,* originally published in 1911—is common to all voluntary associations. "In few areas of political life," it is asserted, "is the discrepancy between the formal juridical guarantees of democratic procedure and the actual practice of oligarchic rule so marked as in private or voluntary organizations such as trade unions, professional and business associations, veterans' groups, and cooperatives. In fact, . . . almost all such organizations are characterized internally by the rule of a one-party oligarchy." Accordingly, "an understanding of the democracy of the ITU is only the proximate aim of the study. . . . A larger objective . . . is to illuminate the processes that help maintain democracy in the great society by studying the processes of democracy in the small society of the ITU." This organization stands out as departing sharply from the prevailing oligarchic pattern. It is the only American trade union which maintains a two-party system, with regular organized opposition and complete slates of candidates in the election of officers of the international union and of most of the larger locals. These practices have prevailed since the beginning of the century; and because the parties have been of approximately equal strength since 1920, there have been frequent turnovers in both the international officers and in those of the important New York local during the past thirty-five years. In seeking to explain how and why the ITU has managed to maintain its system of democratic self-government so successfully, the authors examine the political life of the organization from many standpoints. The study thus embraces: "the history of the unique two-party system; the behavior of the union members, in and out of the shop; the way in which leaders are recruited; the reasons why their power over the union does not become absolute; the way members become interested in union politics, and the reasons why they are sufficiently concerned about the government of their union to keep it democratic." The incisive performance of these tasks justifies the pronouncement of Clark Kerr, in his Foreword, that this study "is certainly the classic work to date in the general area of the internal processes of a union and the definitive study, perhaps for all foreseeable time, of the particular union under scrutiny, the International Typographical Union." The material is soundly organized and effectively presented, with the aid of 79 figures and 39 tables. There are also two appendices—one, a methodological note, and the other, the interview schedule used in the field work—which are enlightening and useful. The study is of inter-

disciplinary character, and should prove meaningful to economists and political scientists, as well as to sociologists and social psychologists.

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This is the sixth volume in the *Canadian Studies in Economics*, sponsored by the Canadian Social Science Research Council and edited by V. W. Bladen. Its primary purpose is to describe the important governmental developments of the past ten or twelve years affecting labor relations in Canada against the background of the earlier and more limited experiments in this sphere. While the treatment embraces both dominion and provincial enactments, only Ontario and Quebec, among the provinces, are accorded any extended consideration. The dominion policies are set forth in the Wartime Labor Relations Regulations incorporated in Privy Council Order 1003 of February 17, 1944 (reprinted as Appendix I), and in the Industrial Relations and Disputes Investigation Act of June 30, 1948 (reprinted as Appendix II). The analysis includes some attention to administrative applications of these enactments by the Labor Relations Boards, through presentation of some case material both in the text and in a special appendix, but chiefly for illustrative purposes rather than with any intent or effort at adequacy. In the concluding chapter, dealing with the significant issues that have emerged in connection with the labor relations legislation, some consideration is accorded to important controversial matters; for the most part, however, the study confines itself to a straightforward and documented exposition of factual character. This little volume may well serve as a starting-point for more intensive research in various directions.

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NOTES

Eveline M. Burns of Columbia University has been appointed chairman of the American Economic Association nominating committee. She would appreciate suggestions for officers for next year at as early a date as possible. She may be addressed at: 276 Riverside Drive, New York 25, N. Y.

An Announcement regarding the Program for the Annual Meetings at Philadelphia

The annual meeting of the Association will be held at the Hotel Sheraton, Philadelphia, Pa., December 28–30, 1957.

In order to provide the officers of the Association with more adequate information as to papers in preparation that might merit a place on the program of the annual meetings, it has been decided to conduct an open competition. Those wishing to enter the competition should write Professor James Washington Bell, Secretary, American Economic Association, Evanston, Illinois, indicating in not more than 100 words the nature of the proposed paper and requesting an instruction sheet and entry form

Papers entered in the competition must be in the hands of the committee of judges by September 1, 1957. Each paper will be identified by a code number, and the judges will make their selection without knowing the names of the authors. A moderate number of the papers submitted will be included in the program, along with other papers submitted by invitation. The titles of the winning papers and the names of their authors will be announced at one of the sessions in Philadelphia, and they will be reported in the *American Economic Review.*

Preference will be given both to papers that report on completed or nearly completed substantive research and to those of a theoretical nature that make a contribution towards integrating developments in different branches of economics or developments in economics and some other social science.

The Association has become so large that the officers charged with making the programs have found it increasingly necessary to establish channels through which they can learn of research projects and other inquiries that members have in process. It is hoped that the information which the present more or less experimental contest will provide on the work of all those who enter it will constitute a significant forward step in developing such channels.

MORRIS A. COPELAND, *President*

ANNOUNCEMENTS

A department of economics has been established at the United States Air Force Academy at the iterim site in Denver, Colorado. The staff includes Colonel Robert F. McDermott, professor; Major Charles V. Manes, associate professor; and Major William G. Ryan, Captain Robert E. Duvall, and 1st/Lt. Maurice C. Mackey, Jr., instructors.

The City College of New York has established a program of graduate studies in economics, leading to the Master of Arts degree.

The Human Relations Area Files, Box 2054 Yale Station, New Haven, Connecticut, has announced a new series of country surveys and bibliographies. A country survey on *Afghanistan* is now available; also bibliographies on *Afghanistan, Burma, China: Modern Economic and Social Development, Japanese Sources on Southeast Asia,* and *The Philippines.* Publications now in preparation and to be completed soon are country surveys on Brunei, Sarawak, and North Borneo, Jordan, the Russian Soviet Federated Socialist Republic, Finland, Iran, Lebanon, Syria; also the following bibliographies: Indonesia, Japanese and Chinese Sources on Burma, Syria-Jordan-Lebanon, and Uralic Peoples.

Foreign Scholars in the United States in the Current Academic Year

Attila Karaosmanoglu, lecturer in political science at the University of Ankara, is at Harvard University on a research grant.

Esme Preston, formerly a staff member at the Oxford Institute of Statistics, is visiting lecturer at Tulane University.

Brinley Thomas, of University College, Cardiff, is visiting professor at Duke University in the spring semester.

Deaths

Morton A. Aldrich, dean of the School of Business Administration and professor of economics emeritus of Tulane University, died May 9, 1956.

William F. Christians, professor of geography in the Wharton School, University of Pennsylvania, died March 13, 1956.

Guy-Harold Smith, who had served the Ohio State University since 1914 as chairman of the department of geography from 1921–34 and as professor up to his retirement in 1943, died November 29, 1956.

G. Lloyd Wilson, professor of transportation in the Wharton School, University of Pennsylvania, died April 11, 1956.

Appointments and Resignations

Curtis Aller has been appointed lecturer in the department of economics and the Labor and Industrial Relations Center at Michigan State University.

A. Asimakopulos has been appointed lecturer in economics at McGill University.

Nicholas Balabkins has been appointed instructor in economics at Washington and Jefferson College.

Philip M. Banks has been appointed instructor in finance in the Wharton School, University of Pennsylvania.

Robert T. Barnes has been appointed instructor in finance in the Wharton School, University of Pennsylvania.

Jack F. Bennett, on leave from the Standard Oil Company of New Jersey, is serving as senior economist for the President's Citizen Advisers on the Mutual Security Program (The Fairless Committee).

Robert E. Berry has been appointed instructor in economics in the Wharton School, University of Pennsylvania.

Walter P. Blass has joined the staff of the Office of Far Eastern Operations of the International Cooperation Administration in Washington, D. C.

Jack C. Bloedorn has been appointed instructor in finance in the Wharton School, University of Pennsylvania.

Arthur I. Bloomfield, of the Federal Reserve Bank of New York, has been in Korea on behalf of the International Cooperation Administration undertaking a survey of monetary and fiscal policy in that country. He was visiting professor of economics in the Wharton School, University of Pennsylvania in the fall semester.

Frederick E. Blum has been appointed instructor in finance in the Wharton School, University of Pennsylvania.

Irving Brecher has been appointed associate professor of economics at McGill University.

Edward W. Brennan has been promoted from instructor to assistant professor of accounting, Wharton School, University of Pennsylvania.

Murray Brown has been appointed assistant professor of economics in the Wharton School, University of Pennsylvania.

John E. Brush has been appointed visiting lecturer in geography and industry in the Wharton School, University of Pennsylvania.

Edward T. Bullock has resigned from Seton Hall University to accept an appointment as professor of economics at the University of Miami.

Philip M. Carroll has resigned from the Bureau of the Budget to accept an appointment as assistant professor of economics at Colorado A & M College.

Russell L. Chrysler has been promoted from associate professor to professor of marketing at Los Angeles State College.

Richard C. Clelland has been appointed assistant professor of statistics in the Wharton School, University of Pennsylvania.

Richard V. Clemence has been named chairman of the department of economics at Wellesley College.

Madeline H. Codding has been appointed research instructor in industrial research, Wharton School, University of Pennsylvania.

Robert D. Corrie has been appointed instructor in finance in the Wharton School, University of Pennsylvania.

Fred I. Courtney has been appointed treasurer of Virginia Metal Products, Inc., Orange, Va.

Kenneth Courtney has been appointed instructor in finance at the Ohio State University.

Virgil D. Cover, of Syracuse University, has been in Burma working with Dilworth Walker, dean of the University of Utah, in the establishment of a program in business administration at the University of Rangoon.

Edwin B. Cox has been appointed instructor in statistics in the Wharton School, University of Pennsylvania.

Robert G. Cox has been promoted from assistant professor to associate professor of accounting in the Wharton School, University of Pennsylvania.

W. Arthur Cullman has been appointed associate professor of marketing at the Ohio State University.

William Diebold, Jr., has been appointed visiting lecturer in economics in the European Institute of Columbia University for the spring semester.

Donald F. Dixon has been appointed instructor in marketing in the Wharton School, University of Pennsylvania.

H. Robert Dodge is instructor in marketing at the Ohio State University.

William L. Doremus conducted a seminar in American marketing methods for the French National Sales Executives Association on the invitation of the Association.

William M. Duffus has retired from the Ohio State University where he was professor of finance.

Richard A. Easterlin has been promoted from assistant professor to associate professor of economics, Wharton School, University of Pennsylvania.

Howard L. Englander has been appointed instructor in marketing in the Wharton School, University of Pennsylvania.

Wilson L. Farman was director of the Colgate University Economics Study Group (off-campus undergraduate honors study of economic development) located in Atlanta, Georgia, this year.

Albert Fishlow has been appointed instructor in economics in the Wharton School, University of Pennsylvania.

George Fisk has been promoted from instructor to assistant professor of marketing in the Wharton School, University of Pennsylvania.

Bruno Foa has been appointed visiting professor of economics in the Wharton School, University of Pennsylvania, for the current academic year.

Kenneth M. Ford, has been appointed director of the Graduate Business School and associate professor of business management at Northeastern University.

Benjamin R. Foster has been appointed instructor in geography and industry in the Wharton School, University of Pennsylvania.

Peter G. Franck has resigned from the Council for Economic and Industry Research, Washington, D. C., to accept an appointment as professor of economics and head of the department of social science at Robert College, Istanbul.

Arthur M. Freedman has been appointed lecturer in economics in the Wharton School, University of Pennsylvania.

Lester Fuszara is instructor in management in the Ohio State University.

Paul H. Geithner has been appointed instructor in marketing in the Wharton School, University of Pennsylvania.

Robert B. Giedraitis is instructor in finance in the Wharton School, University of Pennsylvania.

Donald F. Gordon, now in the Wharton School, University of Pennsylvania, on a year's leave, has been promoted to associate professor of economics at the University of Washington.

Paul V. Grambsch has been appointed dean of the School of Business Administration of Tulane University.

Richard W. Graves has resigned from the staff of Tulane University where he was assistant professor of statistics in the School of Business Administration.

Michael F. Grisafe, formerly of Bradley University, is now assistant professor of accounting at Los Angeles State College.

William Hamburger, formerly of Stanford University and the RAND Corporation, has joined the staff of the Aeronautical Research Foundation as an economist.

Talmadge Harris has been appointed instructor in economics and accounting at Washington and Jefferson College.

James Q. Harty has been appointed instructor in geography and industry in the Wharton School, University of Pennsylvania.

Robert S. Hass is instructor in accounting in the Wharton School, University of Pennsylvania.

Francis X. Healy, Jr., has been appointed instructor in economics in the Wharton School, University of Pennsylvania.

Donald Heany is on a year's leave of absence from Georgetown University to serve as consultant with the General Electric Company in New York.

Leonard W. Hein has been appointed assistant professor of accounting at Los Angeles State College.

Rexford Hersey has been promoted from associate professor to professor of insurance in the Wharton School, University of Pennsylvania.

George H. Hildebrand is now director of the Institute of Industrial Relations at the University of California, Los Angeles.

Henry E. Hoagland has retired from teaching at the Ohio State University where he served as professor of finance.

Stanley C. Hollander has been appointed visiting associate professor of marketing in the Wharton School, University of Pennsylvania.

Earl O. Hollenbaugh is instructor in accounting in the Wharton School, University of Pennsylvania.

David E. Horlacher is instructor in economics in the Wharton School, University of Pennsylvania.

William A. Howe, Jr., is instructor in accounting in the Wharton School, University of Pennsylvania.

Walter Isard has been appointed professor of economics in the Wharton School, University of Pennsylvania.

Gene E. Jackson is instructor in accounting in the Wharton School, University of Pennsylvania.

D. Gale Johnson has been named associate dean of the Division of Social Sciences of the University of Chicago.

Robert H. Johnson is on leave from the State University of Iowa to serve as executive assistant to the governor of the State of Iowa.

Edward J. Kilberg has resigned from the research department of the Mutual Life Insurance Company to work on a project at the National Bureau of Economic Research.

John W. Kendrick has been appointed associate professor of economics at the George Washington University.

Lucy W. Killough has retired as chairman of the deparment of economics at Wellesley College. She continues as A. Barton Hepburn professor of economics.

Irving B. Kravis has been promoted from associate professor to professor of economics in the Wharton School, University of Pennsylvania

I. M. Labovitz has transferred from the Bureau of the Budget to the Legislative Reference Service of the Library of Congress, where he is senior specialist in social welfare.

Howard Laitin has been appointed director of the departments of research and statistics of Michael Saphier Associates and S.U.A. Inc., New York City.

Michael Lalli has been appointed instructor in statistics in the Wharton School, University of Pennsylvania.

Francis Lammer has been appointed lecturer in finance in the Wharton School, University of Pennsylvania.

Don Lawson is assistant professor of marketing at San Diego State College.

Paul H. Levenson, formerly in the Wharton School, University of Pennsylvania, has been appointed lecturer in management at Los Angeles State College.

Howard T. Lewis, professor emeritus of Harvard University, has been professor of industrial procurement at Northeastern University since September 1955.

Arthur F. Loeben has been appointed instructor in geography and industry in the Wharton School, University of Pennsylvania.

John F. Lubin has been promoted from instructor to assistant professor of industry in the Wharton School, University of Pennsylvania.

John P. Lutz has been promoted from instructor to assistant professor of finance in the Wharton School, University of Pennsylvania.

Gordon A. Marker has been appointed instructor in economics in the Wharton School, University of Pennsylvania.

Raymond Mayer has been appointed assistant professor of production management in the School of Business, University of Chicago.

Kenneth M. McCaffree has been promoted to associate professor of economics at the University of Washington.

Adrian M. McDonough has been promoted from instructor to assistant professor of industry in the Wharton School, University of Pennsylvania.

Dan M. McGill has been promoted from associate professor to professor of insurance in the Wharton School, University of Pennsylvania.

Lionel W. McKenzie, of Duke University, will be visiting associate professor at the University of Michigan in the spring semester. In the summer he will direct a workshop at the Social Science Research Council Summer Institute for economists trained in mathematical methods at Stanford University.

S. Sterling McMillan, of Western Reserve University, has been appointed to the executive committee of the Ohio Governor's Council on Atomic Energy.

James McNulty has been appointed associate professor of geography and industry in the Wharton School, University of Pennsylvania.

Gilbert M. Mellin has resigned from the School of Business Administration of Tulane University.

Allan H. Meltzer has been appointed lecturer in economics in the Wharton School, University of Pennsylvania.

Jerome W. Milliman, formerly of Florida State University, has accepted an appointment as assistant professor of agricultural economics at the University of California, Los Angeles.

David N. Milstein has been appointed instructor in economics at Rutgers University.

Burton M. Mirsky has been appointed lecturer in economics in the Wharton School, University of Pennsylvania.

C. Clyde Mitchell has resigned from the University of Nebraska to join the staff of Technical Assistance Experts of the Food and Agriculture Organization. His present assignment is to assist the Ministry of Economics of Mexico on national and regional economic planning.

Donald A. Moore, formerly of Michigan State University, has been appointed assistant professor of economics at Los Angeles State College.

Albert G. Mossawir has been appointed teaching fellow in economics at Wesleyan University.

L. G. Nicolopoulos has been appointed lecturer in economics at McGill University.

Douglass C. North has been promoted to associate professor of economics at the University of Washington.

Lawrence M. Odence has been appointed instructor in accounting in the Wharton School, University of Pennsylvania.

Paul M. O'Leary has resigned as dean of the College of Arts and Sciences to resume his professorship of economics at Cornell University.

Thomas J. Orsagh has been appointed instructor in statistics in the Wharton School, University of Pennsylvania.

Ernest J. Pavlock has been appointed instructor in accounting in the Wharton School, University of Pennsylvania.

Ralph W. Piersall, Jr., has been appointed instructor in accounting in the Wharton School, University of Pennsylvania.

Almarin Phillips, formerly at the Wharton School, is now associate professor in the University of Virginia Graduate School of Business Administration.

Carl A. Polsky has been appointed instructor in accounting in the Wharton School, University of Pennsylvania.

Janus Poppe has been appointed associate professor of economics at Georgetown University.

Robert M. Rauner has been promoted from instructor to assistant professor of economics at Trinity College.

Edward P. Reagen has been appointed assistant professor of economics at Washington and Jefferson College.

Alfred Reifman, of the Department of State, has been appointed deputy director of the International Development Advisory Board, Washington, D. C.

Neil D. Reznik has been appointed instructor in insurance in the Wharton School, University of Pennsylvania.

Raymond W. Ritland has resigned as assistant professor of economics in the School of Business Administration, Tulane University.

Jack E. Robertson has been appointed instructor in economics in the School of Business Administration, Tulane University.

Clyde O. Ruggles, professor emeritus of Harvard University, has been professor of public utility management and regulation at Northeastern University since January 1955.

Theodore Ruprecht has been appointed instructor in economics at Occidental College.

Walter S. Salant, of the Brookings Institution, was visiting lecturer at the Salzburg Seminar for American Studies in Salzburg, Austria in February.

L. H. Samuels, of Johannesburg, has taken a fellowship at Nuffield College, Oxford University, for the year 1957.

Charles Schertenleib has been appointed visiting professor of economics at Georgetown University.

V. Donald Schoeller has resigned from the Wharton School, University of Pennsylvania, where he was lecturer in geography and industry.

Eugene W. Schooler has been appointed research associate in economics in the Wharton School, University of Pennsylvania.

Ben B. Seligman, formerly director of the Washington Office of the American Jewish Committee, has joined the staff of the United Automobile Workers Union as economic and political analyst in international affairs.

Hans F. Sennholz has been appointed professor of economics at Grove City College, Pennsylvania.

Gordan Severance, formerly of San Diego State College, has been appointed assistant professor of finance and law at Los Angeles State College.

Harry J. Shaffer has been appointed instructor in economics at the University of Kansas.

Edward Shils has been appointed associate professor of geography and industry in the Wharton School, University of Pennsylvania.

Edward Simmler, Jr., has resigned as instructor in accounting in the Wharton School, University of Pennsylvania.

Robert H. Smith has been appointed instructor in finance in the Wharton School, University of Pennsylvania.

William J. Smith, Jr., has resigned from Georgetown University and is presently with the Federal Reserve Board serving as economic research consultant.

Eugene Smolensky has been appointed instructor in economics in the Wharton School University of Pennsylvania.

William Snyder has been appointed instructor in economics at Temple University.

Harold M. Somers, dean of the School of Business Administration of the University of Buffalo, has been admitted to the practice of law in New York State and has been appointed chairman of the state's Minimum Wage Board for the Restaurant Industry.

Lewis C. Sorrell, professor of management theory and policy and transportation has resigned from the School of Business Administration, University of California, Los Angeles.

John Steele has been promoted to associate professor of business organization at the Ohio State University.

Herbert Stein has been elected director of research by the Board of Trustees of the Committee for Economic Development.

Matthew J. Stephens has been appointed instructor in accounting in the Wharton School, University of Pennsylvania.

Frank I. Stern has resigned from The Value Line to join Grey Advertising Agency, New York, as economist.

Merton P. Stoltz has been appointed chairman of the department of economics at Brown University.

Williard E. Stone has been promoted from assistant professor to associate professor of accounting in the Wharton School, University of Pennsylvania.

Barrie Storrs has been appointed instructor in geography and industry in the Wharton School, University of Pennsylvania.

R. Stansbury Stockton has been made assistant professor of management at the Ohio State University.

John L. Sullivan has been appointed instructor in marketing in the Wharton School, University of Pennsylvania.

Alfred Tao has accepted an appointment as associate professor of economics at the University of Hawaii.

Benjamin F. Teeter has resigned from Georgetown University to take a position with the Federal Deposit Insurance Corporation.

Benjamin J. Tepping has been appointed visiting professor of statistics in the Wharton School, University of Pennsylvania.

Jack Topiol has been appointed instructor in accounting in the Wharton School, University of Pennsylvania.

Harry M. Trebing has been appointed assistant professor of economics in the College of Business Administration of the University of Nebraska.

Lynn Turgeon has been appointed visiting lecturer in economics at Hofstra College.

William Voris has been promoted from assistant professor to associate professor and head of the department of management at Los Angeles State College.

Gerald E. Warren has resigned from Tulane University to accept an assignment as assistant director for economic development, U. S. Mission to Taiwan, International Cooperation Administration.

Elsie M. Watters has been appointed assistant professor of statistics in the School of Business Administration, Tulane University.

Paul Wells, formerly of RAND Corporation, has joined the faculty of Los Angeles State College as assistant professor of economics for the current academic year.

Richard J. Whiting has been appointed assistant professor of management at Los Angeles State College.

William L. Wilbur has resigned from Memphis State College to become associate professor of economics at Wofford College.

Roger J. Williams, Jr., has resigned from Baldwin-Wallace College to accept a position as economist with the Union Carbide and Carbon Corporation in New York City.

Martin Wilmington has been promoted to adjunct associate professor of social sciences at Pace College.

Bruno S. Wojtun has been appointed instructor in economics at Temple University.

Carl H. Wolf has been appointed instructor in accounting in the Wharton School, University of Pennsylvania.

Dallas M. Young, of Western Reserve University, has been retained as impartial umpire, Cleveland Transit System and Division 268, Amalgamated Association of Street, Electric Railway & Motor Coach Employees of America.

VACANCIES AND APPLICATIONS

The Association is glad to render service to applicants who wish to make known their availability for positions in the field of economics and to administrative officers of colleges and universities and to others who are seeking to fill vacancies.

The officers of the Association take no responsibility for making a selection among the applicants or following up the results. The Secretary's Office will merely afford a central point for clearing inquiries; and the *Review* will publish in this section brief description of vacancies announced and of applications submitted (with necessary editorial changes). Since the Association has no other way of knowing whether or not this section is performing a real service, the Secretary would appreciate receiving notification of appointments made as a result of these announcements. It is optional with those submitting such announcements to publish name and address or to use a key number. Deadlines for the four issues of the *Review* are February 1, May 1, August 1, and November 1.

Communications should be addressed to: The Secretary, American Economic Association, Northwestern University, Evanston, Illinois.

Vacancies

Economics: Instructor or assistant professor in economics. Co-educational Catholic college desires M.A. in economics. Salary $4 500 to $5,500 per year. Successful applicant will teach only economics courses. Opportunity to work for Ph.D. locally. New campus. Opportunity to become chairman of the department when qualified. Address inquiries to: Frank L. Luken, Vice-President, Villa Madonna College, Covington, Kentucky.

Editor, college textbooks: New York publisher seeks young man to assume editorial responsibility for college textbooks in the social sciences. Should be familiar with liberal arts curriculum and should have had some experience in organizing material (not necessarily textbooks) for publication. Copy-editing and proofreading not required. Salary depends upon qualifications; excellent opportunity for rapid advancement. P185

Accounting and finance: In state-supported institution in the Southwest. Teaching mainly upper division and graduate courses in accounting and one course a year in finance. Minimum requirements: Ph.D., with C.P.A. desirable. Professorial rank, salary $7,500 or better; summer teaching extra. Opportunity to increase compensation by working on outside University contracts. Duties may begin February, 1957. P188

Economics: Permanent addition to staff of social science department. Will teach general education economics at sophomore level and senior college or graduate courses in labor economics, history of economic thought, international economic relations, comparative systems. Ph.D. preferred. Rank dependent on qualifications; salary $540-$640 per month for nine months; summer teaching may add two month's salary. Send data and inquiry to Hugh Jameson, Department of Social Sciences, Northern Illinois State College, De Kalb, Illinois.

General economics, public finance, money and banking: Research assistant, with at least an M.A. degree, specialized in public finance and/or money and banking; no experience required; for research unit of a government department in Puerto Rico. One-year contract, renewable. Annual salary $6,000, plus travel expenses to and from Puerto Rico. P189

Economics and statistics: The Air Force Institute of Technology, located at Wright-Patterson Air Force Base, Dayton, Ohio, has an opening for a teacher of economics and statistics, work to begin not later than September, 1957, but may begin sooner if applicant should so desire. The position will carry a civil service rating of GS-11 or GS-12, depending upon the qualifications of the applicant. The beginning salary for GS-11 is $6,390; and for GS-12 is $7,570. Applicants should have a Ph.D. degree in economics or in statistics, have mathematics through integral calculus, and be qualified to teach advanced courses in his specialty and intermediate courses in the other area. Successful teaching experience is also desirable. The teaching load will be light but it is expected that considerable time will be devoted to research in order that courses taught may have the greatest possible applicability to the needs of our students. Duties extend over the entire twelve months but one quarter of each year is usually devoted to study and research. Application should be addressed to Dr. James Roy Jackson, Dean, School of Business, Air Force Institute of Technology, Wright-Patterson AFB, Ohio.

THE AMERICAN ECONOMIC REVIEW

BERNARD F. HALEY, Managing Editor
DORIS MERRIAM, Assistant

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Manuscripts and editorial correspondence relating to the regular quarterly issues of this REVIEW should be addressed to Bernard F. Haley, Managing Editor of THE AMERICAN ECONOMIC REVIEW, Stanford University, Stanford, California. *Style Instructions* for guidance in preparing manuscripts in acceptable form will be provided upon request to the editor.

OTHER DEPARTMENTS

The American Economic Review

VOLUME XLVII JUNE 1957 NUMBER THREE

ENTREPRENEURIAL INCOME, SAVING AND INVESTMENT

By IRWIN FRIEND AND IRVING B. KRAVIS*

The primary purpose of this article is to set forth what is known about the saving and investment behavior of entrepreneurs, particularly proprietors of unincorporated nonfarm enterprises. Income also is covered because of its relevance to saving and investment decisions. The major sources of data are the Bureau of Labor Statistics 1950 survey of consumer expenditures, the Surveys of Consumer Finances made by the University of Michigan Survey Research Center for the Federal Reserve Board, and national accounts and other aggregative data.

In the years following the second world war, personal saving has accounted for nearly two-thirds and corporate saving for a little more than one-third of total saving in the United States. Some evidence indicates that proprietors (including partners) and other self-employed persons played a major part in the provision of personal saving, but other data do not support this conclusion. Contradictions are also to be found with respect to the relative importance of proprietors' investment in their own enterprises.

Considering the strategic role of saving and investment in the dynamics of cyclical change and economic growth, it seems important to assay the available evidence in a systematic fashion. We realize that data on saving are subject to wide margins of error, but it seems unlikely that more suitable survey and aggregative data will be available for some time.[1]

* The authors are respectively professor of finance and professor of economics at the University of Pennsylvania.

Their article is based on research undertaken in connection with a broad Study of Consumer Expenditures, Incomes and Savings at the Wharton School of Finance and Commerce of the University of Pennsylvania. The study is based largely on the 1950 survey of the Bureau of Labor Statistics of 12,500 families in 91 representative cities, and is being carried out in cooperation with that agency. It is financed by a grant from The Ford Foundation.

[1] There is, perhaps, some irony in the use of the B.L.S.-Wharton data first in an area

I. *Entrepreneurial Shares in Income and Saving*

Shares in Income[2]

Survey data for recent years indicate that consumer units headed by self-employed and other entrepreneurial personnel account for over 20 per cent of the nation's consumer units and about 30 per cent of the nation's disposable personal income. The various groups included as "entrepreneurial personnel" and the share of each in the years 1948-50 are shown in Table I.

Evidence drawn from national accounts data seems reasonably consistent with these survey findings, although conceptual differences preclude precise comparisons. Analysis of the national accounts data suggests also that (1) the entrepreneurial income share in 1948-50 was close to the average for "normal" years in recent decades; (2) business and professional incomes conform to major cyclical swings and have a greater amplitude of fluctuation than total personal income; and (3)

TABLE I.—ENTREPRENEURIAL SHARES IN INCOME AND SAVING, 1948–50

	Percentage Shares in:		Saving-Income Ratio (per cent)
	Personal Saving (1)	Disposable Income (2)	(3)
1. Farm operators	11.0	6.5	8.6
2. Independent professional men	5.5	2.1	13.4
3. Artisans	−0.2	.4	−2.6
4. Owners of incorporated business	10.0	4.0	12.8
5. Owners of unincorporated business	35.0–45.0	12.0	14.9–19.1
6. Business managers and officials	9.0	5.7	8.1
7. All self employed (2+3+5)	40.5–50.5	14.5	14.2–17.8
8. Business owners (4+5)	45.0–55.0	16.0	14.3–17.5
9. Business owners, managers, artisans (3 to 6 inc.)	54.0–64.0	22.1	12.5–14.8
10. All groups (1 to 6 inc.)	70.5–80.5	30.7	11.7–13.4

Sources: Column 1: Table A, Appendix I.
Column 2: Table B, Appendix II.
Column 3: column 1 ÷ column 2 × saving-income ratio for nation. The national saving-income ratio is taken at 5.1 per cent which is the relation of national accounts estimates of personal saving to disposable income, 1948–50.

where survey data have the greatest weaknesses. In contrast to the contradictions described herein for saving data, our preliminary checks show that the blown-up B.L.S.-Wharton consumption data conform reasonably well in level and quite closely in percentage distribution among major categories of goods with Department of Commerce national accounts data.

[2] This section summarizes the results of an analysis of the data presented in Appendix I.

there has been a secular downswing in nonfarm proprietors' share in income dating at least from the closing decades of the last century.

Shares in Saving[3]

As for savings, the survey data summarized in Table I indicate that unincorporated businessmen alone account for at least a third and all entrepreneurial personnel well over two-thirds and perhaps more than three-fourths of personal saving. While the savings of corporations are not under study in this article, it is of interest to note that the addition of their saving to the total savings of the groups in the table implies that around 80 per cent of total nongovernmental saving in the United States was provided by business units or entrepreneurial groups. Adjustments for the underreporting of deposits in financial institutions, a major deficiency in the survey savings estimates, might lower these shares somewhat.

However, aggregative data, particularly for nonfarm entrepreneurs, do not confirm the survey findings regarding the important role of this group in the provision of savings. The available data focus on changes in the "net worth" or "equity" of nonfarm noncorporate businesses and thus measure neither the saving of the businesses qua businesses (*i.e.*, their retained earnings) nor the total saving of their proprietors who, of course, may accumulate assets outside of their businesses.[4] The figures are actually an amalgam of retained earnings and net current transfers of proprietors' capital to the business. Hence, they represent the current business investment of proprietors—offsets to proprietors' total saving, rather than their saving. For this reason we defer systematic treatment of these data until we discuss business investment.

However, in order to round out our account of what can be said about entrepreneurial shares in personal saving, we anticipate some of our subsequent findings by mentioning the following points: (1) The bulk of proprietors' current saving according to an impressive array of survey data has been invested in their businesses, at least in recent years. (2) Business investment by noncorporate enterprise according to aggregative data has been a very small percentage of personal sav-

[3] This section summarizes the results of an analysis of the data with respect to entrepreneurial *shares* in personal savings presented in Appendix II. The implications of different bodies of data for the *level* of personal saving are discussed in Appendix IV.

[4] The following definitions with respect to unincorporated business saving and investment are used in this paper:

Business saving = Retained earnings (in principle, and in the aggregate data in fact, this is after adjustment for inventory profits).

Business investment = Changes in business net worth = Increase in business assets minus increase in business liabilities (apart from revaluation items) = Retained earnings plus net capital transfers of personal assets to business.

Physical investment = Purchases of plant and equipment and change in inventories.

ing—probably well under 5 per cent. The conclusion which follows, viz., that proprietors' saving must also be a small proportion of total personal saving, is in conflict with the direct survey findings. There appears to be no plausible basis for reconciling the opposite conclusions indicated by the two sources.

II. *Saving-Income Ratios*

Given the income and saving shares, saving-income ratios for each group in Table I can be computed if the saving-income ratio for all occupations taken together is known. The over-all ratio used, obtained from national accounts data, affects the level of the group ratios in column 3 but not the relationship among them. The results show that the saving-income ratios for the entrepreneurial groups, except the artisans,[5] were well above the national average. The ratio for owners of unincorporated business falls in a range of nearly 3 to nearly 4 times the average.

A more direct, though for entrepreneurial groups less detailed, comparison of the saving-income ratios of self-employed and managerial groups with those of other occupations is offered in Table II, where both B.L.S.-Wharton and Federal Reserve-Michigan data are presented. Although the two sets of figures differ greatly, they are in accord in showing very much above-average saving-income ratios for entrepreneurial occupations.[6]

The differences between the over-all income and saving averages in the two sets of data are discussed in the Appendixes. It is obvious, however, that the differences in the saving-income ratios are too large to be ascribed to the inclusion of nonurban spending units in one survey

[5] The saving-income ratios for artisans and independent professional men are based on rough estimates of saving and income made from B.L.S.-Wharton urban data by the present writers. Unlike the estimates for the businessmen, they could not be checked against data from a second source.

[6] The data in Table II are relevant also to the Friedman hypothesis that the ratio between the "permanent" components of income and consumption is invariant to income level. (Milton Friedman, *A Theory of the Consumption Function,* National Bureau of Economic Research, forthcoming.) These data do not appear to support the hypothesis. Aside from the entrepreneurial groups, there seems to be little basis for believing that the ratio of transient to permanent components of income and consumption differed substantially from one occupational group to another. Yet if the occupations are arrayed in order of decreasing incomes, the saving-income ratios decline in a fairly regular fashion, the high-saving farm group representing the major exception. One possible way of reconciling these data with the Friedman hypothesis, which does not appear to us to be convincing, would be to argue that the lower-income occupations consist of many persons who are on their way up to higher-income occupations. Because of the inclusion of these persons, it might then be claimed, the average spending of the group is raised by the optimistic expectations of the potential climbers. We have discussed the Friedman hypothesis at greater length in "Consumption Patterns and Permanent Income," *Am. Econ. Rev.,* Proceedings, May 1957, XLVII, 536.

TABLE II.—SAVING-INCOME RATIOS, BY OCCUPATION, 1950

	B.L.S.-Wharton (Urban only)		Saving-Income Ratio		Federal Reserve-Michigan (All U.S.)			
	Average After-Tax Income	Average Saving	Excluding Durables (per cent)	Including Durables[a] (per cent)		Average Before-Tax Income	Average Saving	Saving-Income Ratio (per cent)
	(1)	(2)	(3)	(4)		(5)	(6)	(7)
Self-employed	$6,270	$905	14.4	24.8	Managerial and self-employed	$5,790	$1,118	19.3
Salaried professional, officials	6,110	600	9.8	21.2	Professional and semi-professional	5,630	404	7.2
Clerical and sales	4,349	128	2.9	14.2	Clerical and sales	3,910	269	6.9
Skilled wage earners	4,431	85	1.9	16.1	Skilled and semi-skilled	3,660	179	4.9
Semiskilled	3,758	59	1.6	14.3	Unskilled and service	2,200	90	4.1
Unskilled	2,731	− 25	− .9	9.2	Farm operator	2,480	269	10.9
Not gainfully employed	2,133	−257	−12.0	− 2.5	All other	2,010	−108	−5.4
All groups after tax	4,147	179	4.3	15.9	All groups before tax	3,520	270	7.7
					All groups after tax	3,220	270	8.4

[a] Consists of purchases of automobiles, television sets, radios, musical instruments, furniture and household equipment.

Sources: B.L.S.-Wharton data. Saving is defined so as to include personal insurance. Population weights were adjusted for underreporting of high-income units. See Appendix I. Federal Reserve-Michigan data derived from *Federal Reserve Bulletin* as described in footnotes to Table A, Appendix I.

and their exclusion in the other. At this point we merely note that the national ratio for 1950 derived from the national accounts data—5.9 per cent—is almost midway between the B.L.S.-Wharton and Federal Reserve-Michigan over-all ratios but that there are conceptual as well as statistical differences among these ratios.

The Federal Reserve-Michigan data in Table II do not permit a separation of business owners and managers. However, business owners and farmers were segregated by Morgan in his use of the same basic survey data. We have calculated the following saving-income ratios by using Morgan's figures on the share of business owners in disposable income and in saving, and *Federal Reserve Bulletin* data on mean income and mean saving by all groups.[7]

	1948	1949	1950	1948–50
	(per cent)			
Business owners	14.9	20.8	32.2	22.6
Farmers	16.2	7.0	11.7	11.6
Others	4.5	3.1	4.7	4.1
All groups	7.2	6.0	8.4	7.2

[7] The last line in the table is based entirely on *Federal Reserve Bulletin* articles on the Survey of Consumer Finances. Mean savings were taken from Table 7 of the September 1951 article and mean disposable incomes for 1949 and 1950 from Table 19 of the August 1951 article. Disposable income for 1948 was approximated on the basis of the ratio between median and mean incomes shown in Table 19. The first three lines were calculated by dividing the shares in saving reported by Morgan by the share in disposable

The 1950 ratio for business owners (owners of unincorporated businesses and of closely held corporate business) is substantially above any other entrepreneurial ratios we have obtained. Nevertheless, like all the other survey evidence, these figures indicate substantially higher propensities to save on the part of entrepreneurs than for the population at large.

Earlier surveys unfortunately cast little light on the saving propensities of entrepreneurs as compared with other individuals. Data for the 1935-36 survey, analyzed by Dorothy Brady, do not show any noteworthy differences between the average saving of entrepreneurs and nonentrepreneurs at the same level of income, though entrepreneurs tended to save less at low levels of income (perhaps reflecting a higher average level of wealth or higher customary income status) and apparently to have a greater marginal propensity to save.[8] Unlike the postwar surveys, these data do not indicate any clear-cut tendency toward relatively high average saving propensities by upper-income entrepreneurs. This may reflect either deficiencies in the data for upper-income groups or differences in entrepreneurial saving behavior in less prosperous periods.

Saving-Income Ratios by Income Levels

To determine whether the high saving by entrepreneurs is due simply to their high incomes or to stronger saving motivations, we must compare the saving of entrepreneurs and nonentrepreneurs at each income level.

Our sources of information, the B.L.S.-Wharton and the Klein-Margolis[9] materials, are described in Appendixes I and II in general terms, and in Appendix III they are compared with respect to the distribution of income and savings for proprietors and for others, by income class. Here we are concerned only with the saving-income ratios the two sources yield; these are shown in Table III.

One point stands out from an examination of this table. Given the propensities of unincorporated businessmen towards larger-than-average *negative* saving at low incomes and larger-than-average *positive* saving at high incomes, the total contribution of this group to national saving obviously depends upon the distribution of its members among

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income reported by him, and multiplying the quotient by the over-all saving-income ratio as given in the last line of our table. (*Cf.* J. N. Morgan, "The Structure of Aggregate Saving: Correction and Addendum," *Jour. Pol. Econ.*, Dec. 1953, LXI, 536.)

[8] Dorothy Brady, "Family Saving, 1888 to 1950," in R. W. Goldsmith, *A Study of Saving in the United States* (Princeton, 1955), Vol. III, pp. 149, 175 and 233 ff.

[9] L. R. Klein and J. Margolis, "Statistical Studies of Unincorporated Business," *Rev. Econ. Stat.*, Feb. 1954, XXXVI, 33 ff.

TABLE III.—SAVING-INCOME RATIOS, BY INCOME LEVEL
(per cent)

	(1) B.L.S.-Wharton (1950)	(2)	(3) Klein-Margolis (1948–50)	(4)
	All urban	Unincorp. business	All nonfarm	Unincorp. business
1. Under $3,000	−15.6	−60.8	− 5.9	−56.9
2. $3,000–4,999	0.5	− 7.3	6.8	24.6
3. $5,000–7,499	5.3	9.9	11.7	26.9
4. $7,500–9,999	12.4[a]	17.4	27.5 (rows 4 and 5 together)	46.6
5. $10,000 and over	26.3[a]	38.8		40.6
6. Total	4.3	15.3	7.8	24.0

[a] Ratio for all units with incomes over $7,500 is 20.4 per cent.
Source: Table C, Appendix III.

the various income classes.[10] In both the Klein-Margolis and B.L.S.-Wharton data, sufficient proportions are in the high-income classes to result in very substantial contributions to national saving. However, comparisons made at an income level which represents the average for entrepreneurs show larger savings for entrepreneurs than nonentrepreneurs (see Table C, Appendix III). These may be regarded as rough approximations to comparisons based on customary income status.[11]

Whatever may be thought about the level of the saving-income ratios of unincorporated businessmen, the progression of the ratios from low to high incomes indicated in the B.L.S.-Wharton data is more plausible than that shown in the Klein-Margolis figures. In this connection, it may be mentioned that while there are sizable sampling errors in the B.L.S.-Wharton ratios presented, they do not seem to be large enough to affect seriously the conclusions drawn. For example, the standard error of the aggregate ratio for 241 unincorporated businessmen in large cities in the North (out of a total of approximately 900 unincorporated businessmen for the B.L.S.-Wharton sample as a whole) was

[10] In view of the previous comment on the Friedman hypothesis (footnote 6), it is only fair to note that above-average dissaving at low-income levels and above-average positive saving at high-income levels by groups such as proprietors, whose incomes are more variable than average, are consistent with the hypothesis. However, we have not been able to explore the extent to which occupational differences in wealth would, if combined with the observed differences in income, satisfactorily explain these ratios.

[11] For entrepreneurs—in view of the significant year-to-year variability in their income—only those with incomes near the average for all entrepreneurs may be regarded as being close to their customary postwar income status. For nonentrepreneurs the smaller variability of income means that a given observed income—except at the extremes—is less likely to depart substantially from their customary income status.

2.5 percentage points; for those in the over $10,000 income class it was 5.5.[12] This, of course, leaves open the question of reporting biases that may have influenced the results.

Some evidence has already been adduced to show that farm entrepreneurs also apparently have high saving propensities (see Table II). Comparisons for 1935-36 and 1941 are as follows:

	Income Level	Saving-Income Ratios (per cent)		
		Farm	Rural Nonfarm	Urban
1935–36	$ 1,000	− 2.5	− 3.0	− 6.0
	3,000	30.7	12.7	10.3
	6,000	49.7	33.7	19.0
	10,000	43.2	37.0	27.2
1941	$ 1,000	0	− 3.7	− 2.5
	2,000	18.8	6.0	3.2
	3,000	25.7	13.0	4.0
	4,000	37.0	22.0	8.8

Notes: All ratios computed from straight-line interpolations of income and saving. Income figures include nonmoney income.

Sources: 1935–36: National Resources Planning Board, *Family Expenditures in the United States* (Washington, 1941), pp. 123, 127, and 130.

1941: Bureau of Labor Statistics, *Family Spending and Saving in Wartime*, Bull. No. 822 (Washington, 1945), p. 94; U.S. Dept. of Agriculture, *Rural Family Spending and Saving in Wartime*, Misc. Pub. No. 520 (Washington, 1943), pp. 26–27.

The intermediate position of the ratio for rural nonfarm groups suggests that motivations to save associated with the *entrepreneurial* character of farming may not be the only factors at work. Whatever the reason, however, the figures indicate that farm entrepreneurs in this period saved substantially more at given income levels than the population at large. Analyses of Federal Reserve-Michigan data by Klein and Morgan indicate that this has also been true in the period since the second world war.[13]

Saving and Consumption Patterns

Are the higher savings of the business groups achieved by economizing on one or a few categories of consumption or through curtailments

[12] The standard errors cited were computed for the special subsample of businessmen in large cities in the North that is discussed in connection with the relation between investment and saving of proprietors. See page 283.

[13] L. R. Klein, ed., *Contributions of Survey Methods to Economics* (New York, 1954), pp. 104 and 228.

all along the line? In Table IV preliminary results of the B.L.S.-Wharton study are drawn upon for a comparison of the consumption patterns of urban families headed by self-employed and those of all urban families. Consumption expenditures of the self-employed represent 89 per cent of their after-tax income as against 97 per cent for all urban units. Aside from notable differences in the percentages allocated for food, household operation and gifts and contributions, how-

TABLE IV.—CONSUMPTION PATTERNS OF SELF-EMPLOYED AND OF ALL URBAN UNITS, 1950

	All Urban Spending Units		Urban Spending Units Headed by Self-Employed		Percent Distribution of Consumption at Income of:			
					$4,000		$12,000	
	(dollars)	(per cent)	(dollars)	(per cent)	All	Self-employed	All	Self-employed
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Consumption, total	3,979		5,100		4,092	4,315	9,259	8,653
Consumption, total		100.0		100.0	100.0	100.0	100.0	100.0
Food & beverages	1,197	30.1	1,369	26.9	30.9	29.6	22.6	20.8
Tobacco	68	1.7	67	1.3	1.8	1.5	.9	.8
Housing	438	11.0	529	10.4	11.2	10.8	9.9	10.1
Fuel, light & refrigeration	158	4.0	199	3.9	4.1	4.5	2.7	2.5
Household operation	178	4.5	306	6.0	4.3	5.3	7.9	8.2
Furnishings & equipment	261	6.6	376	7.4	6.4	6.3	7.3	10.1
Clothing and clothing services	438	11.0	576	11.3	11.0	10.5	12.6	12.2
Transportation	510	12.8	631	12.4	12.5	12.4	11.3	11.0
Medical care	197	5.0	260	5.1	5.0	5.6	3.9	3.8
Personal care	85	2.1	100	2.0	2.2	2.1	1.8	1.6
Reading, recreation & education	227	5.7	317	6.2	5.4	5.7	7.0	6.8
Miscellaneous	58	1.5	84	1.6	1.3	1.6	2.6	2.1
Gifts & contributions	165	4.1	284	5.6	3.8	4.1	9.4	10.0
Addendum:								
Consumers durables[a]	467	11.7	595	11.7	11.3	11.3	9.9	10.5

[a] Consists of purchases of automobiles, television sets, radios, musical instruments, furniture and household equipment.

Source: Columns (1)–(4) represent preliminary results of the B.L.S.-Wharton tabulations. The other columns were calculated from straight-line logarithmic regressions for each consumption category. The regressions were fitted to average income and average expenditure for 7 income groups ranging from the $1,000–$2,000 bracket to the $7,500–$10,000 class. The under-$1,000 and the over-$10,000 income classes were omitted because scatter diagrams indicated that logarithmic straight lines provided good fits for the middle classes but not for these extreme ones. This was done for all urban spending units and for urban spending units headed by self-employed persons. Estimated expenditures at incomes of $2,000, $4,000 and $8,000 were then calculated from the regressions. Estimated expenditures for the $12,000 income were obtained by simple interpolation between the $7,500 to $10,000 and the over $10,000 brackets, using the average income in each bracket as the basis for interpolation. To save space, only the results for the $4,000 and $12,000 levels are shown. The discussion in the text is based on all four income levels.

ever, the money that was spent on consumption appears to have been allocated to the various categories in similar proportions. This result is obtained despite a difference in income of nearly 30 per cent between the self-employed and all urban units.

When the comparison is based on families having equal incomes, as in columns 5 and 8, the general impression that the self-employed do not have radically different consumption patterns is confirmed. The lower proportion spent on food and the higher share devoted to household operation by the self-employed are evident at all income levels,

but the differences are narrower. Somewhat lower percentages for personal care and for clothing in the self-employed patterns are the only other differences that persist throughout the income range.

These preliminary results suggest that entrepreneurs achieve their higher saving mainly by holding total consumption down, and apportioning the reduced total much like everyone else.

III. *Saving-Income Regressions*

The B.L.S.-Wharton and the Klein-Margolis data may be compared also in terms of the differences in the regression coefficients that are obtained when relationships of the form $S = a + bY$ are fitted (with S = saving and Y = income after taxes). The results are as follows:[14]

	a	b
B.L.S.-Wharton (urban only)		
Self-employed	—1,844	.443
	(203)	(.028)
All other	— 762	.216
	(98)	(.018)
Klein-Margolis (nonfarm)		
Unincorporated business owners	—1,598	.545
	(463)	(.085)
All other	— 593	.246
	(132)	(.026)

Whether the comparison between the two sets of data is based on business or nonbusiness groups, the B.L.S.-Wharton figures show larger dissaving at zero income and lower marginal savings propensities than the Klein-Margolis data. The absolute differences are, however, smaller when the "all other" groups are compared; the marginal propensities are particularly close in view of the differences in coverage. Each set of regressions shows significantly higher marginal saving propensities for the business group than for all others, and yields an entrepreneurial saving curve that rises from far below the nonbusiness curve at low incomes to far above it at high incomes.

Of particular interest in the comparison of the B.L.S.-Wharton and Klein-Margolis results is the difference in the a's for nonbusiness spending units, which also seems to be carried over to businessmen.[15] The former data imply from $100 to over $200 less saving per consumer unit than the latter regardless of income level, which accounts for the major difference between the two blown-up saving totals dis-

[14] Unweighted regressions were fitted to average saving and income figures for 9 income classes for the B.L.S.-Wharton data and 7 for the Klein-Margolis data. The standard errors of the a's and the b's are given in parentheses. Regressions weighted by sample frequencies yielded substantially similar results.

[15] It should be noted, however, that none of the differences in the two sets of results is significant at the 2σ level.

cussed in Appendix IV. Some of this difference can be explained by the disparity in the estimates of saving in the form of home improvements. Disparities in estimates of other components of saving, including consumer debt, are now undergoing examination.

The role of entrepreneurs in the provision of savings can also be studied by analyzing the relation of aggregate time series data on personal saving to total disposable income, to entrepreneurial (and professional) income, and to other significant variables. An advantage of this approach is that the data involved—personal saving, disposable income and entrepreneurial income—have a much lower margin of error than do estimates of entrepreneurial saving (or investment). A disadvantage is that much of the covariation between personal saving and entrepreneurial income might well be ascribable to the highly cyclical performance of both of these variables, rather than to a direct relation between them.

While a number of different regressions between individuals' saving and entrepreneurial income and other variables have been computed, only a few need be commented on since they all show the same general pattern—a high marginal propensity to save by entrepreneurs accounting for a large proportion of cyclical fluctuations in the total of individuals' saving. Using Department of Commerce data for 1929 to 1954 (exclusive of second world war years) and extending the estimates back to 1923, the regression between per capita deflated (1947 prices) saving (x_1), disposable income (x_2), nonfarm entrepreneurial and professional income (x_3) and liquid assets or cash plus U. S. Governments (x_4) is: $x_1 = -119 + \underset{(.049)}{.189}x_2 + \underset{(.273)}{.674}x_3 - \underset{(.020)}{.101}x_4$ with the standard errors indicated and a multiple correlation coefficient of .91. The annual saving of $18.2 billion implied by this relationship over the past five years (1951-1955) may be compared with an actual average of $18.3 billion.[16] Just as entrepreneurial income in this relation subsumes other cyclical influences, the liquid assets variable subsumes other secular influences. Omitting liquid assets, using nondeflated data or substituting saving data developed by Raymond Goldsmith (adjusted roughly to Department of Commerce concepts) tends to decrease the estimated marginal propensity to save out of aggregate disposable income and to increase the propensity to save out of entrepreneurial income; the Goldsmith data increase the correlation obtained to above .95 but point to an entrepreneurial propensity to save of over 1.

[16] See Irwin Friend with the assistance of Vito Natrella, *Individuals' Saving: Volume and Composition* (New York, 1954) for the extension of the Department of Commerce estimates back to 1923 and for other saving relationships utilizing entrepreneurial income, liquid assets and other factors as explanatory variables.

A variance analysis of the regression presented above implies that nonfarm entrepreneurial and professional income is fully as important as all other income in explaining the observed fluctuations in the total of individuals' saving.

The conclusion that can properly be drawn from this approach is simply that the aggregate time series data on personal saving, total disposable income and entrepreneurial income are consistent with the thesis that entrepreneurs play a major and distinctive rôle in the fluctuations of total individuals' saving, and are to this extent consistent with findings from cross-section surveys. The actual time-series and cross-section estimates of the marginal "propensity" to save out of entrepreneurial and other incomes, though different, can be considered to be of the same general order of magnitude, particularly in view of the conceptual differences involved in the two sets of data. The earlier reference to cyclical and secular trends in entrepreneurial and non-entrepreneurial income would suggest that, while a secular decline in the relative importance of entrepreneurial income may have tended to keep down the aggregate saving ratio, businessmen play a particularly important part in cyclical fluctuations in saving. (This point is of course greatly reinforced by the addition of corporate saving to that of unincorporated enterprises.) In view of the plethora of variables available for explaining fluctuations in the total of personal saving relative to aggregate income, the conclusion drawn from the above analysis must be considered rather weak except to the extent that it is corroborated by cross-section data.

IV. *Noncorporate Business Investment*

Our interest in noncorporate business investment—*i.e.*, in changes in the net worth of unincorporated enterprises—is twofold. First, as has been suggested, the investment data may be used to provide additional evidence concerning the importance of entrepreneurial saving. Secondly, we want to know the extent to which physical and other investment in noncorporate business provides an offset to the saving of proprietors.

Aggregative Data

We turn our attention first to the Commerce-S.E.C. approximation of noncorporate business investment—the series showing annual changes in the "equity" of nonfarm unincorporated business enterprises.[17]

[17] The change in equity, which may be attributable either to profits or losses or to net transfers of proprietors' capital into or out of businesses, is regarded as the net effect of inventory change, new construction and equipment expenditures, and changes in payables to corporations. It excludes changes in unincorporated businesses' holdings of liquid assets,

Changes in unincorporated business equity in the postwar period, the first row in Table V indicates,[18] were equivalent to less than 3 per cent of personal saving. The proportions were higher for the prewar period, but these years were marked by much greater variability in the annual ratios so that the ratio for the whole period is much less typical of the years covered than the ratio for the postwar period.

Changes in equity indicate the extent to which noncorporate businesses absorbed the business and personal saving of proprietors. From the standpoint of the national economy, however, interest attaches also

TABLE V.—CHANGES IN EQUITY[a] AND NET PHYSICAL INVESTMENT OF NONFARM UNINCORPORATED BUSINESS

	1929–41	1946–54	1929–54
1. Net increase in unincorporated business equity[a] as per cent of:			
(a) Personal saving	24.5	2.7	5.1
(b) Business & professional income	10.8	1.5	4.0
2. Net physical investment of unincorporated business as per cent of:			
(a) Net increase in unincorporated business equity	95.6	908.0	266.9
(b) Business & professional income	10.4	14.0	10.6
(c) Net domestic investment	106.5	14.8	19.7
(d) Personal saving	23.7	24.3	13.5

[a] Inventory change, new plant and equipment, and net change in payables.

Notes and sources: All percentages are calculated from period totals.

With the exception of certain data for 1929–33, from Friend, *Individuals' Saving*, *op. cit.*, p. 91, the figures are derived from S.E.C. data in Dept. of Commerce, *National Income*, 1954 Ed.; and from the *Survey of Current Business*, July 1955, with table and line references as follows:

Personal saving: Table 3, line 14.

Net increase in equity of unincorporated business: net increase plus depreciation: Table 6, lines 19 and 24.

Net physical investment of unincorporated business: Construction and equipment plus increase in inventories minus depreciation. Table 6, lines 20 and 21–24.

Net investment: Gross private domestic investment Table 5, line 13 minus capital consumption allowance, Table 4, line 2.

to the role of noncorporate business in physical investment—*i.e.*, investment in inventories and plant and equipment. The lower lines of the table show the importance of such expansionary expenditures of noncorporate nonfarm businesses relative to changes in equity, business and professional income, national investment, and personal saving.

such as cash, demand deposits, government securities and, less important, changes in payables to consumers and government.

[18] The figures in Table V could also be given on a gross basis. The chief difference would be smaller differences in the ratios for different periods owing to the greater year-to-year stability of gross ratios as compared to net ratios.

The data suggest that unincorporated nonfarm enterprises have played a significant role in capital formation. In the prewar period almost the whole of the change in equity was represented by net physical investment and this more than equaled the value of national net investment. In the postwar years, noncorporate nonfarm net physical investment, though only a seventh of national investment, was much larger than the increase in equity. According to the S.E.C.-Commerce figures for 1946-54, over half of this net physical investment has been financed by bank loans, over one-third by other debt, and only little more than a tenth by increases in equity. Except for the war years when it diminished in relative importance, unincorporated business provided investment offsets to about one-fourth of personal saving; in individual years, however, this proportion ranged from 19 to 136 per cent in the prewar period and 13 to 84 per cent in the postwar years.

TABLE VI.—INCREASES IN UNINCORPORATED BUSINESS EQUITY OR NET WORTH AS PERCENTAGES[a] OF PERSONAL SAVING

	Commerce[b]	Goldsmith[c]
1897–1916		6.8
1917–1928		5.5
1929–1941	24.5	−10.6
1946–1949	5.5	2.9
1897–1949		5.8
1929–1949	6.6	5.7

[a] All percentages calculated from period totals.
[b] Numerator refers to changes in "equity." See text.
[c] Numerator refers to changes in "net worth" (exclusive of capital gains). Differs from "equity" chiefly in that it includes changes in liquid asset holdings.

Notes and sources:
Commerce data derived from *National Income*, 1954 Ed.
Goldsmith data derived from *A Study of Saving in the United States*, *op. cit.*

This impression of the relative unimportance of increases in noncorporate nonfarm business equity (though not of business investment) as an offset to total personal saving is confirmed by Goldsmith's data, which are compared in Table VI with the S.E.C.-Commerce figures just discussed. Beyond the broad conclusion that unincorporated businesses absorbed roughly 5 per cent of personal saving, the two sets of data are notable chiefly for their lack of agreement. This can be ascribed not only to variation in statistical estimates but also to differences in concept[19] and to the fact that small absolute differences—even a few hundred millions—cause large relative differences when the

[19] The main difference is that Goldsmith includes changes in business liquid asset holdings in estimating changes in "net worth" of unincorporated business.

magnitude being estimated runs around $1 billion as has generally been the case with increases in unincorporated business equity.

The Commerce-S.E.C. figures on changes in equity in farm enterprises lead to a similar conclusion. Indeed, according to these figures, equity in farm enterprises actually decreased during most years from 1929 to 1954 and for the period as a whole. Unlike the nonfarm noncorporate sector, physical investment in agricultural inventories, construction and equipment was not even great enough to offset depreciation allowances. However, there is reason to believe that farm depreciation is overstated in these figures.

The picture of the saving and investment behavior of proprietors that emerges from the materials thus far considered is composed of the following main elements: (1) Entrepreneurial savings, according to the survey data which provide the only direct estimate of such savings, have been high relative both to entrepreneurial income and to total personal saving of the nation. (2) Net new investment by proprietors in their enterprises, according to aggregate data, has been low relative either to entrepreneurial income or national saving. (3) Proprietors have accounted for an appreciable share of national physical investment apparently, according to aggregate data, by using borrowed rather than their personal or business funds to acquire new plant and equipment.

Survey Data

It was possible from the B.L.S.-Wharton data to investigate further the first two of these conclusions; that is, to check on the mutual consistency of the high entrepreneurial saving shown by surveys and the low entrepreneurial investment in business indicated by aggregate data. A preliminary tabulation of the 1,197 families headed by self-employed persons included in the B.L.S. data suggests that business investment is generally a high proportion of entrepreneurial saving but the data are sufficiently variable that no definitive conclusions can be drawn.

For all self-employed combined, the B.L.S.-Wharton data indicate that business investment is 61 per cent of their aggregate saving. However, there is reason to believe that this percentage may be an understatement of the universe ratio of business investment to saving for the self-employed. The elimination of one extreme value, for example, increases the ratio to 70 per cent. Furthermore, the ratio is clearly higher for proprietors than for the self-employed category as a whole since the latter includes (in addition to unincorporated businessmen) professionals and artisans who have low business investment in relation to their saving. A special tabulation of the B.L.S. sample

data for large cities in the North (consisting of 241 proprietors of unincorporated business and 66 other self-employed units) indicates that the ratio of business investment to saving for proprietors of unincorporated business might be 5 to 10 percentage points higher than for the self-employed as a whole. These considerations suggest that the ratio for proprietors may be somewhere in the neighborhood of 70 to 75 per cent. The standard error of this percentage is very high. For the sample of 241 proprietors of unincorporated business in large cities in the North which included the extreme value previously referred to, the standard error was 38 percentage points, but the error is likely to be smaller for the B.L.S. data as a whole.

The above discussion suggests that the universe ratio between entrepreneurial investment and saving, as measured by the B.L.S.-Wharton data in 1950, was probably between ½ and 1. An examination of the approach used by the B.L.S. to measure the change in the entrepreneur's equity in business (increases in business assets less increases in business liabilities) did not reveal any clear tendency towards bias in estimation, although the possibilities of bias are undoubtedly very great. On the other hand, it should be noted that even if business investment is correctly estimated in such surveys, there is reason to believe that saving is probably understated so that the ratio of business investment to saving may be lower than it appears.

While data on business investment are not available from the Federal Reserve-Michigan surveys for comparative purposes, the Klein-Margolis article referred to earlier does present information on business saving or retained earnings from such surveys, separating business saving from the "personal" saving of entrepreneurs. The Klein-Margolis data apparently imply that business saving accounted for roughly 90 per cent of aggregate entrepreneurial saving over the period covered, viz., 1948-52.[20] The Klein-Margolis measure of business saving may be conceptually quite close to what we have termed business *investment* in which case their ratio of 90 per cent for business saving is comparable with the corresponding ratio of 70 to 75 per cent for business investment derived from the B.L.S.-Wharton data. However, to the

[20] This estimate was obtained from two different procedures: first, deriving the regression of business saving on disposable income for the period 1948-50 from Tables 13 and 14 of the Klein-Margolis article, and applying the income weights (adjusted to an after-tax basis) in that article to arrive at weighted business saving and aggregate saving; and second, calculating the ratios of business saving to income from Table 16 covering the period 1949-52 and using these ratios in conjunction with the information in Table 13 and the income weights to obtain weighted business and aggregate saving. It should be noted that the article is not completely clear on whether the term business saving or retained earnings may not really refer to, or be measured by, business investment. See footnote 4 on definitions.

extent the Klein-Margolis measure approximates our definition of business *saving*, the excess of business saving over business investment would imply capital transfers from business to personal accounts. Further analysis of the B.L.S.-Wharton and the Federal Reserve-Michigan data would be required to determine the relation between business investment and business saving and to test satisfactorily the consistency of the two sets of results. Tentatively, we conclude that though the data are not clear on the quantitative relation of business investment and business saving to each other and, more important, of business investment to the total saving of entrepreneurs, they do suggest strongly that business investment constitutes a major share of entrepreneurial saving.

Some indirect evidence on the relation between entrepreneurial saving and investment is given by estimates of business and other assets of nonfarm self-employed persons derived from Federal Reserve-Michigan Survey of Consumer Finances data.[21] These data suggest that roughly 40 per cent of the net worth of self-employed persons in early 1950 was represented by business investment. If this is taken as a crude indication of the relation between accumulated investment and saving, it would point to a ratio of investment to saving lower than that obtained from the B.L.S.-Wharton or Klein-Margolis data.

The only other shreds of evidence available on the relation between entrepreneurial saving and investment are even more indirect and tenuous but should at least be mentioned. First, the Survey of Consumer Finances saving data for 1947-50 showing an increase in nonliquid assets (including nonentrepreneurial) one and one-half times the total of individuals' saving[22] seem to imply a major (though indeterminate without access to the basic data) share of entrepreneurial investment in total saving and much more so in entrepreneurial saving. (However, this increase in nonliquid assets appears to be substantially larger than that implied by external aggregate data.) Second, consumer surveys in other countries in the postwar period, patterned after the Survey of Consumer Finances in the United States, seem to show not only high entrepreneurial saving propensities and a high proportion of entrepreneurial to total saving but also a high ratio of entrepreneurial investment to saving. Thus for consumer units with annual incomes of $2,000 or more in Puerto Rico in 1950, 52 per cent of aggregate saving was estimated to be in the form of business (nonfarm) investment with

[21] R. W. Goldsmith, *op. cit.*, Vol. III, pp. 123, 107.

[22] *Reports of Federal Reserve Consultant Committees on Economic Statistics*, Hearings before the Subcommittee on Economic Statistics of the Joint Committee on the Economic Report, 84th Cong. (Washington, 1955).

another 12 per cent in farm investment; in England in 1953, retained earnings accounted for 80 per cent of entrepreneurial saving.[23]

Thus the survey data point not only to high entrepreneurial saving propensities but also to the absorption of from half to all of these high savings in proprietorship investment. The time-series data, on the other hand, indicate that proprietors' investments (*i.e.*, changes in equity) in their businesses have generally been unimportant relative either to their income or to the nation's personal saving. Can this conflict be reconciled?

Conceptual Differences

So far as entrepreneurial saving is concerned, the major conceptual difference between the two surveys and the Commerce estimates is the inclusion of personal (as well as business) saving of businessmen in the survey estimates of total saving by businessmen and the inclusion of capital transfers from personal to business assets (in addition to business saving) in the Commerce estimates of changes in unincorporated business equity, exclusive of changes in business liquid assets. The internal evidence of the admittedly spotty survey materials previously discussed suggests that the personal saving of businessmen and capital transfers from personal to business assets (which would have to be negative to help the reconciliation) can at best account for only part of the difference between the survey and Commerce estimates in the period since the second world war. The survey materials do not cast any light on changes in business liquid assets and available external estimates of these changes complicate rather than aid the reconciliation of survey and Commerce data.[24] Other conceptual differences between the survey and Commerce estimates seem not too important and largely offsetting.[25] There are no obvious major con-

[23] Eleanor E. Maccoby and Frances Fielder, *Saving Among Upper-Income Classes in Puerto Rico* (University of Puerto Rico, 1953) and L. R. Klein, "Patterns of Saving: The Surveys of 1953 and 1954," *Bull. Oxford Univ. Inst. Stat.*, May 1955, XVII, 173-214.

[24] See Goldsmith, *op. cit.*, Vol. I, p. 853, and Friend, *op. cit.*, pp. 63, 185. To help the reconciliation of survey and Commerce data, the changes in business liquid assets would have had to be positive during the years 1948-50, but in fact they seem to have been negative in at least 1948 and 1949.

[25] These include the treatment of the inventory valuation adjustment (which might have been significant for 1950 but not for 1948-50) deducted from Commerce but probably not from survey saving; purchases of automobiles by persons partly for business purposes reflected as business investment in Commerce but perhaps not in survey saving; goods and services received from the business but not paid for which were entered as a decrease in business investment by the B.L.S. though in some instances this may have represented double counting; and business losses which in certain cases where business investment had to be estimated from the income account were entered as zero rather than as a decrease in investment by the B.L.S. Goods and services not paid for and business losses may be estimated at more than $400 million and $100 million respectively in 1950, on the basis

ceptual differences between the two survey estimates of entrepreneurial saving, though the B.L.S. figures for home improvements and apparently also certain other components of personal savings by entrepreneurs are considerably lower than the Federal Reserve-Michigan estimates.

It seems probable that the higher average and marginal entrepreneurial saving propensities indicated by survey data cannot be reconciled with the corresponding Commerce estimates through conceptual adjustments. The difference between survey and Commerce marginal propensities could perhaps be rationalized by arguing that an individual's marginal propensity to save as his income changes over time cannot be inferred from marginal propensities derived from a cross-section study relating to a given time period and referring to individuals with different incomes. The differences between the average propensities cannot, of course, be rationalized in this manner.

V. *Significance of Findings*

There are two types of questions raised by these results: First, which do we believe? Second, what difference does it make? In connection with the first, it seems clear that the present state of knowledge does not permit us to distinguish between the reliability or validity of the different estimates of entrepreneurial saving. The aggregate estimates of entrepreneurial "saving" are extremely tenuous; as a matter of fact, the changes in equity in unincorporated business presented by Commerce are simply rough adjustment items applicable to unincorporated enterprises which have to be estimated to arrive at a direct total of personal saving comparable with the indirect totals derived from the national accounts. The survey data are subject to their own deficiencies, as suggested by a comparison of the B.L.S.-Wharton and Federal Reserve-Michigan estimates and by their serious underestimate of savings in the form of deposits. However, it can be argued that the presently available surveys might be expected to give better estimates of entrepreneurial saving than the aggregate data now available —a sad commentary on the aggregate data rather than a tribute to the surveys.

The second question raised above relates to the significance of the survey finding that entrepreneurs have high saving propensities and account for a high proportion of total saving, at least in prosperous

of the B.L.S.-Wharton data, which could conceivably reduce the B.L.S.-Wharton estimate of business investment by close to $300 million as compared to the other estimates but which probably have a very much smaller effect. It should be noted that though business depreciation and rental real estate are conceptually treated in the same way in the Commerce and survey data, the implied estimates might be considerably different.

periods. In most empirical work directed toward the derivation of an aggregate consumption function for individuals (as distinguished from corporations and government), little attention has been paid to possible differences between the saving propensities of businessmen and other persons, probably due at least in part to the low entrepreneurial investment in business suggested by aggregate data. To interpret adequately the implications of high entrepreneurial saving in years of high economic activity, we need to know something about such saving in more depressed periods, the main factors determining the observed difference in saving behavior, and the corresponding trends in investment demand.

Average and marginal saving by nonfarm entrepreneurs in the 1935-36 survey, the first to study occupational differences in consumption behavior, did not differ markedly from that by other individuals, though farmers did show appreciably higher than average saving propensities (see pp. 274, 276). If the 1935-36 survey is taken as indicative of saving behavior in depressed periods (admittedly a questionable assumption), it can be tentatively concluded that entrepreneurs have about the same saving propensities—or somewhat higher if farmers are included—as the rest of the population in periods of low economic activity. Near-average saving in depression and above-average saving in prosperity would mean that over the cycle entrepreneurs save significantly more of their incomes than other individuals. Whether they have always done so is conjectural since the survey data segregating entrepreneurial saving only go back to 1935-36. However, if this has been the case, it may—in view of the declining entrepreneurial share in total personal income—help to explain the relative constancy in the over-all personal saving-income ratio in spite of the secular rise in income.

Within the cycle, the level of and trend in entrepreneurial saving propensities, in conjunction with the greater variability of entrepreneurial earnings as compared to income generally, would suggest that a high proportion of the observed cyclical fluctuations in the total of individuals' saving relative to their income may be explained by the movements in entrepreneurial saving. The difference in the saving behavior of entrepreneurs as compared with other individuals may reflect a number of factors, including the greater variability and uncertainty of entrepreneurial income, the stimulation of direct investment outlets, the effect of business debt, some understatement of income, and perhaps also innate psychological influences.[26]

It is not possible to tell from the available data the trend in physical

[26] See Friend, *op. cit.*, pp. 128-29. To some extent the high saving of businessmen in their active years may be offset by their behavior after retirement.

investment by entrepreneurs relative to the trend in their saving. There are neither survey data on physical investment (from which an investment schedule might be constructed) nor aggregate data on total saving by entrepreneurs. As already mentioned, the aggregate data on increases in equity in unincorporated business are extremely unsatisfactory, and while those relating to physical investment are somewhat better, there is some question whether they may appropriately be compared with the survey saving estimates in view of the apparent inconsistencies in the two sets of data.

The increase in net physical investment by both nonfarm and farm entrepreneurs in 1948-50 as compared to 1935-36 shown by the aggregate data—about $4 billion a year for nonfarm and farm entrepreneurs combined—seems of the same general magnitude as the increase in their saving indicated by survey data. In both periods, but particularly in 1948-50 for which the data are more adequate, the estimated net physical investment by entrepreneurs does not appear to be much different from their estimated saving.[27] However, given the serious deficiencies in the estimates and the difficulties in isolating saving and especially investment schedules from the available data, it is virtually impossible to draw any reasonably firm conclusions about the cyclical impact of entrepreneurial behavior on total income.

If further investigation were to confirm this suggestion of a close association between changes in entrepreneurs' saving and their net physical investment, it could be inferred that (a) entrepreneurial saving is motivated largely by the need or desire to finance business investment and (b) business investment is a ready-made offset to a kind of saving that is an important fraction of total personal saving. On the other hand, given a greater stability in savings propensities than in investment, the high marginal and average propensities to save by entrepreneurs indicated by the 1948-50 surveys might be interpreted as pointing to a significant deflationary impact from this sector in the later stages of a boom, particularly if new survey data after 1950 show a continuation of high saving propensities by entrepreneurs.

Directions of Future Work

Enough has been said to indicate rapidly diminishing returns from the proliferation of hypotheses on the basis of these tenuous and fre-

[27] The data for net physical investment are from *National Income*, 1954 Ed., pp. 166-67. The postwar data for saving are the survey estimates previously discussed in this article. Entrepreneurial saving for 1935-36 is assumed to be only moderately higher than business investment as obtained from the 1935-36 survey (see Friend, *op. cit.*, p. 74), an assumption which is consistent with postwar survey findings and implies a saving-income ratio similar to that indicated by regional data available from the 1935-36 survey.

quently conflicting data. We hope, however, that the preceding analysis of entrepreneurial saving behavior shows, first, the potential danger in constructing aggregate saving or consumption functions without distinction between entrepreneurs and other individuals, and in assuming that saving and investment decisions are independent for individuals as a whole; and second, the necessity of compiling new data to resolve the present difficulties.

An essential preliminary step for an understanding of aggregrate saving (and investment) behavior would be to collect new survey data from a sufficiently large sample of businessmen, providing detailed personal and business income accounts and balance sheets, or mixed (personal and business combined) accounts where separate accounts are not available. In addition to data on the saving behavior of businessmen after 1950, such a survey would provide for the first time a breakdown of business income, saving and investment, showing separately the major items of business as well as personal assets and liabilities for tests of internal consistency and comparison with external sources. It would be highly desirable to obtain these data annually for several years from a reasonably constant sample of businessmen. This would not only cut down on sampling errors in estimating saving and investment from changes in balance sheet items, but should permit a much more satisfactory derivation of saving and investment propensities than is possible from a series of discrete cross-section studies. Samples of new and discontinued businesses could be handled separately.

A further, and in our opinion indispensable, step toward clarification of the role played by entrepreneurs in total saving is the institution of a relatively new approach to the problem of obtaining reliable breakdowns of individuals' saving into entrepreneurial and nonentrepreneurial classifications (as well as by other major economic groups). This new approach would entail a sampling of accounts on the books of financial institutions, corporations and governmental units, rather than a sampling of individuals directly, to obtain reliable estimates of asset position and change in asset position by occupational status, including as a minimum a breakdown of individuals into nonfarm entrepreneurs, farmers, quasi-individuals and other persons. Most—though not all—of the components of saving can be handled in this manner—such as demand and time deposits, insurance, a high proportion of government and corporate securities held by individuals, mortgages and other debt, and housing. The general plan (though a number of variations in procedure are possible) would be to draw a sample of names, addresses and the dollar amounts of the accounts from the books of the institutions, and to contact the individuals directly to

obtain occupation, income class and other significant characteristics. (This information might also be tied in with individual income tax returns.) In this method, based on objective accounting records, the possibilities of response and other biases entering into the estimates of saving by economic groups would be minimized.

Appendix I. Entrepreneurial Income

Survey Data

Survey data bearing upon the share of entrepreneurs in disposable income are assembled in Table A. The first column shows some of the preliminary findings from the B.L.S.-Wharton study. The B.L.S. survey covered only urban families (including single-person units) which in 1950 accounted for a little less than 70 per cent of the nation's families and a little more than 70 per cent of the nation's disposable income.[28] The B.L.S.-Wharton data presented in column 1 and elsewhere in this article have been blown up to urban aggregates by applying adjusted rather than original B.L.S. population weights.[29] The adjustment appeared desirable because the B.L.S. survey seems to have understated the proportion of families at the extremes of the income distribution, particularly at the high-income end.[30]

The data in colunms 2 to 5 are based directly or indirectly on the nationwide Federal Reserve-Michigan Surveys of Consumer Finances.[31] As the table footnotes indicate, the source materials were subjected to varying degrees of manipulation in order to derive the estimates of income shares.

The total share of business owners estimated from the Klein-Margolis study

[28] Based on estimates of urban and nonurban incomes by H. B. Kaitz in Dewhurst and Associates, *America's Needs and Resources: A New Survey* (New York, 1955), pp. 962-63.

[29] Our method was to prorate the total number of urban families to 9 income classes in accordance with the distribution by Kaitz (*loc. cit.*). The families in each income class were then allocated to 7 occupational groups (see Table II) in the proportions indicated in the B.L.S. survey. To derive aggregate income and saving, the adjusted population weights thus obtained were applied to the B.L.S. average income and saving for each income group in each occupation. The effect of this adjustment on the urban income and saving aggregates was as follows:

	(1) Original (million dollars)	(2) Adjusted (million dollars)	(3) Ratio (2) ÷ (1)
Aggregate income	122,960	130,342	106
Aggregate saving	3,174	5,637	178
Saving-income ratio	2.6	4.3	165

[30] The statement is based on comparisons of the original B.L.S. data with income distributions in which survey data have been supplemented by information from income tax returns. This matter will be discussed in detail in the forthcoming volumes of the Study of Consumer Expenditures, Incomes, and Savings.

[31] The Federal Reserve-Michigan data used in this study refer to "spending units." We have not tried to adjust for the difference in definition between this unit and the B.L.S. "family." While the difference probably does not seriously affect comparisons of the two surveys with respect to income shares for different occupational groups, it may greatly affect comparisons of the two surveys with respect to income distributions for such groups.

TABLE A.—ENTREPRENEURIAL SHARES IN DISPOSABLE INCOME
SURVEY DATA 1950 AND 1948–50
(per cent)

	B.L.S.-Wharton (Urban only) 1950	Federal Reserve-Michigan				Rough Composite Estimate 1948–50[a]
		Federal Reserve Bulletin 1950	Morgan		Klein-Margolis	
			1950	1948–50[a]	1948–50[a]	
	(1)	(2)	(3)	(4)	(5)	(6)
1. Farm operators		6.6	5	6.3		6.5
2. Independent professional men	2.1					2.1
3. Artisans	.4					.4
4. Owners of incorporated business					4.0	4.0
5. Owners of unincorporated business	14.0				10.7	12.0
6. Business managers and officials					5.7	5.7
7. Nonfarm self-employed (2+3+5)	16.5					14.5[b]
8. Business owners (4+5)			12.0	13.7	14.7	16.0[b]
9. Business owners and managers, artisans (3 to 6)		21.0				22.1[b]
10. All groups (1 to 6)						30.7[b]

[a] Represent three-year averages.
[b] Sums as indicated in stub.

Sources and methods:

Column 1: Since independent professional men and self-employed artisans are included in the forthcoming B.L.S.-Wharton tabulations along with unincorporated businessmen in a single "self-employed" category, only the figure for this group as a whole (line 7) could be taken directly from the adjusted survey results. The entries for the three sub-groups in column 1 represent estimates by the authors. The first step in deriving the figures was to estimate the aggregate incomes of independent professional men and of artisans with the aid of data given by Klein and Margolis showing the proportion of spending units headed by persons in these occupations and the income distribution of such spending units. (See L. R. Klein and J. Margolis, "Statistical Studies of Unincorporated Business," *Rev. Econ. Stat.*, Feb. 1954, XXXVI, 33 ff.) For this purpose, it was assumed that the average income for each income class corresponded to the average income of all nonself-employed persons in that income class. The proportion of each occupational group to be found in urban areas was estimated from the 1950 *Census of Population* Bull. P-C1, p. 270.

Column 2: The published figures on mean incomes by occupation, the total number of spending units, and the distribution of spending units by occupation were the raw materials from which these numbers were calculated. See "1951 Survey of Consumer Finances," *Fed. Res. Bull.*, Aug. and Sept. 1951, XXXVII, 920–37. The before-tax average income for each occupation was converted to disposable income by deducting the average percentage tax liability for the income class in which the average before-tax income fell (see *Fed. Res. Bull.*, Sept. 1951, XXXVII, 1074, Table 16)

Columns 3 and 4: Taken directly from J. N. Morgan, "The Structure of Aggregate Saving: Correction and Addendum," *Jour. Pol. Econ.*, Dec. 1953, LXI, 536.

Column 5: Klein-Margolis (*op. cit.*) did not show average or aggregate incomes for occupational groups but they did present income and saving data for each of 7 or 8 disposable income classes for nonbusiness spending units and for several kinds of entrepreneurial groups. By the use of rather crudely estimated after-tax income distributions, the present authors were able to derive estimates of aggregate income for the several occupational groups and, from these aggregates, the proportions given in the table. The total number of spending units was obtained from the "Methods of the Survey of Consumer Finances," *Fed. Res. Bull.*, July 1950, XXVI, 801. Spending units were apportioned to the several occupational categories in accordance with data given in Klein and Margolis. In this connection it should be noted that Klein-Margolis (and to a lesser degree Morgan) apparently tended to resolve doubts about the proper classification of particular units in favor of the entrepreneurial classifications.

Klein-Margolis' before-tax income distributions for the various occupational groups were adjusted to an after-tax basis through a rough procedure based on the difference between before- and after-tax distributions published in the *Fed. Res. Bull.*, Aug. 1951; "1951 Survey of Consumer Finances," XXXVII, 936–37, Tables 19 and 20. For each occupational category, the number of spending units in each income class was calculated by applying the after-tax income distribution to the total number of spending units in that occupation. Aggregate income for each occupation was obtained by multiplying the number of spending units at each income level by the average income, and summing the products. (Aggregate saving for each occupational group was derived in a similar way.)

Aggregate disposable income for all nonfarm groups came to $152.1 billion. This compares with a U. S. average of $157.2 billion for the years 1948–50 derived directly from the *Federal Reserve Bulletin* by multiplying mean disposable income per spending unit by the number of spending units. (Mean disposable incomes for 1949 and 1950 were taken from *Fed. Res. Bull.*, Aug. 1951, XXXVII, 936, Table 19; mean disposable income for 1948 was estimated on the basis of the difference between median incomes given in the same table for 1948 and 1949.) If an allowance is made for the inclusion of farm incomes in the figure derived from the *Federal Reserve Bulletin* and its exclusion from the estimate drawn from the Klein-Margolis data, the difference between the two aggregates is reversed in direction but remains of the same order of magnitude. (This comparison is based on a 6.3 per cent share for farm income, which is indicated in the Morgan data given in Table II.)

The link in our chain of statistical reasoning based on the Klein-Margolis data by which the after-tax income distributions are estimated is very weak indeed. However, the results check not only with respect to total disposable income, as has just been indicated, but also with Morgan's estimate of the shares of nonfarm entrepreneurs in disposable income as is mentioned in the text. On the other hand, the estimate of aggregate savings derived from the Klein-Margolis data in a similar way yields a total that is 15 per cent higher than the 1948–50 average of figures reported in the *Federal Reserve Bulletin*.

corresponds fairly closely to Morgan's estimate based on the original survey data (see line 8). No other pair of figures in columns 1 to 5 can be compared directly owing to differences in occupational coverage or temporal reference. Nevertheless, the data in the various columns appear to be at least roughly consistent, considering that we would expect to find nonfarm entrepreneurial incomes somewhat more important in urban areas than in the nation as a whole. Both the B.L.S.-Wharton (urban 1950) figures and the Klein-Margolis version of the Federal Reserve-Michigan (nation, 1948-50) data point to a share in income of somewhere between 10 and 15 per cent for unincorporated businessmen. Klein-Margolis data for 1948-50 suggest a share of around 20 per cent for business owners and managers, while *Federal Reserve Bulletin* data for 1950 indicate a share of 21 per cent for owners, managers and artisans.

This consistency, or at the minimum the lack of major contradictions, makes it seem reasonable to set down a rough composite picture of entrepreneurial shares given in the final column of the table. In selecting these figures we weighed the advantage of B.L.S.-Wharton data—viz., they not only were based on a larger sample but had also been corrected for the tendency of surveys to underreport high-income units—against the advantage of the Federal Reserve-Michigan sources—viz., national rather than merely urban coverage.

Aggregative Data

Aggregative data constitute the other major source of information concerning the share of total income received by entrepreneurial groups. The following comparison may be made between the composite figures derived from survey data and aggregative data drawn from the national accounts.

	(1) Survey Data (per cent of after-tax money income)	(2) National Accounts (per cent of personal income)
1. Farm operators	6.5	6.7
2. Business and professional	14.5	10.4[a]
a. Independent professional	2.1	1.8
b. Artisans	.4	8.6[a]
c. Unincorporated business	12.0	
3. Total	21.0	17.1

[a] Includes inventory profits.
Sources: Column 1: Table A.
Column 2: U. S. Department of Commerce, *National Income*, 1954 Ed.

The difference between the national accounts and survey estimates of the business and professional share of income is larger than that for farm operators. This divergence, shown on line 2, can be explained to some degree by

the differences in the definition of income.[32] The survey data on entrepreneurial income include all income of spending units headed by persons who derived their income mainly from entrepreneurial sources; national accounts data refer, of course, merely to entrepreneurial income. A sample of 241 proprietors in large cities in the North, drawn from the B.L.S. 1950 survey, suggests that unincorporated businessmen derived somewhat over two-thirds of their income from their businesses.[33] If this ratio is applied to the 12 per cent shown in the preceding table, the entrepreneurial-type income of unincorporated businessmen becomes 8.0 per cent of after-tax income. On this basis the share of unincorporated businessmen and artisans indicated by the survey data becomes 8.4 per cent compared with the 8.6 per cent shown in the national accounts data.

There are, however, important types of adjustments that would widen rather than narrow the gap between the two figures. The national accounts data, for example, refer to personal income and the survey data to disposable money income; the relatively high-income business and professional groups probably have a higher share of income before taxes than after.

More perspective is provided by annual figures for the period 1929-54. These indicate that incomes derived from farm ownership averaged around 6 per cent of personal income, declining in some years to less than 4 per cent and rising in other years to more than 8 per cent. In the war and early postwar years farm owners' shares were nearer to the upper limit but a downward trend since 1948 has brought the share of farm owners down to the lower limit. There is evidence that the farm owners' share in income was higher in the half century preceding the first world war[34]

Business and professional incomes were equivalent to 9 or 10 per cent of personal income for the 1929-54 period as a whole, and also during "normal" years such as 1929, 1935-39 and 1947-54. Somewhat higher wartime shares (11 and 12 per cent) were offset by lower depression shares (less than 7 per cent). This behavior suggests that business and professional incomes conform at least to major cyclical swings and that they have a greater amplitude of fluctuation than total personal income. In recent years the ratio of business and professional incomes to total personal income has declined from 10.5 per cent in 1947 to 9 per cent in 1954 and 1955. This decline may be a continu-

[32] For a detailed treatment of differences between the Federal Reserve and Commerce income concepts see J. Lansing's chapter in L. R. Klein, ed., *Contributions of Survey Methods in Economics, op. cit.*

[33] To determine this ratio the authors converted after-tax incomes obtained from B.L.S.-Wharton tabulations to a before-tax basis. This was done with the aid of the Bureau of Internal Revenue's 1950 instructions for the completion of Form 1040 and of Table 16, "1951 Survey of Consumer Finances," *Fed. Res. Bull.*, Aug. 1951, XXXVI, 1920-37.

[34] Estimates of farmers' shares back to 1849 are given by R. W. Goldsmith, *op. cit.*, Vol. I, pp. 757-59. From 1929 to 1949, his figures indicate that the net income of farm operators derived from agriculture varied from 4 to 9 per cent of the national income. The ratio was in this range during the 1920's also, but went as high as 15 per cent during the first world war. For several decades before the first world war, the ratio varied around 10 to 11 per cent of national income. The share was much higher during the Civil War and somewhat higher in the postwar period.

ation of a secular downswing in the share of nonfarm entrepreneurs that dates at least from the closing decades of the last century,[35] reflecting in part at least the shift to the corporate form of organization immediately before and after the turn of the century.

Of the one-sixth of the nation's personal income that has flowed to unincorporated enterprises, roughly half has gone to nonfarm entrepreneurs, some 35 to 40 per cent to farm owners, and the balance to independent professional practitioners. Within the business sector, trade has accounted for more than half of entrepreneurial income received by proprietors and partners, while within the professions medical practitioners have received about two-thirds of the income.[36]

In summary, (1) survey and national accounts data seem reasonably consistent with respect to the relative importance of entrepreneurial-type income, and (2) the share of entrepreneurial-type income in 1948-50 was close to the average share for "normal" years in recent decades. Thus, the composite picture of entrepreneurial income shares given in Table A may well be representative for other years as well as for 1948-50.

Appendix II. Entrepreneurial Saving

Survey Data

In Table B the shares of entrepreneurs in total personal savings as indicated by recent survey data are set forth in a manner analagous to the income data in Table A.[37] The sources and methods are also the same as those described in connection with the income data.

The share for business owners (line 8) derived by the present writers from the Klein-Margolis data checks closely with the share reported by Morgan working from the same original data used by Klein-Margolis. Also the difference between Morgan's share for business owners (line 8) and the share for owners, managers and artisans (line 9) derived from the *Federal Reserve Bulletin* is about what would be expected from the shares for managers and artisans shown in columns 1 and 5. On the other hand, the B.L.S.-Wharton estimate for the share of unincorporated businessmen exceeds the estimate derived from Klein-Margolis by an amount that is greater than might be reasonably attributed to the differences in geographical coverage and dates of reference of the underlying surveys.

[35] For the decades prior to the time that Commerce Department figures are available, data assembled by Simon Kuznets (*National Income: A Summary of Findings,* [New York, 1946], p. 50) show a secular downswing in the share of income received by entrepreneurs (farm and nonfarm), from around 25 per cent or more in the closing decades of the 19th century to 16 per cent in the 1929-38 decade. (The latter figure checks closely with the Commerce estimates of farm and nonfarm noncorporate business income for the same decade.) The decline apparently reflects decreases in the shares both of farm and of unincorporated nonfarm enterprises, with the latter accounting for the major part of the over-all decrease.

[36] The statements in this paragraph are based on data for 1929, 1939, 1945 and 1949 shown in *National Income,* 1954 Ed., pp. 77, 164-56

[37] Savings are defined to include personal insurance—sometimes shown separately in the publication of survey data—as well as changes in other assets and liabilities.

TABLE B.—ENTREPRENEURIAL SHARES IN PERSONAL SAVING
(per cent)

	B.L.S.-Wharton (Urban only) 1950	Federal Reserve-Michigan				Rough Composite Estimate 1948–50[a]
		Federal Reserve Bulletin 1950	Morgan		Klein-Margolis 1948–50[a]	
			1950	1948–50[a]		
	(1)	(2)	(3)	(4)	(5	(6)
1. Farm operators		9.0	7.0	10.7		11.0
2. Independent professional men	5.6					5.5
3. Artisans	− 0.2					—
4. Owners of incorporated business					9.8	10.0
5. Owners of unincorporated business	49.6				31.9	35.0–45.0
6. Business managers and officials					9.4[b]	9.0
7. Nonfarm self-employed (2+3+5)	55.1					40.5–50.5[c]
8. Business owners (4+5)			46.0	44.3	41.7	45.0–55.0
9. Business owners and managers, artisans (3 to 6)		54.0				54.0–64.0[c]
10. All groups (1 to 6)						70.5–80.5[c]

[a] Represent three-year averages.
[b] Based on 1949–50 data.
[c] Sums as indicated in stub
Sources: See Table I

A composite statement of the shares in personal saving during the 1948-50 period is nevertheless set down (see column 6). Although the figures are subject to large margins of error, the totals in lines 7 to 10 help to indicate the order of magnitude of entrepreneurial shares in saving. (These ratios would be reduced somewhat if the dissaving of retired persons were excluded.) It is clear that the survey data assign major importance to this source of saving.[38]

Estimates of individuals' net worth by occupational groups, based on Federal Reserve-Michigan data for early 1950, support this finding. These estimates, presented below, indicate that nonfarm and farm entrepreneurs together account for 47 per cent of individual's net worth, exclusive of that of retired persons.[39]

NET WORTH OF DIFFERENT OCCUPATIONAL GROUPS[40] EARLY 1950

	Billion Dollars	Per Cent
1. All groups	549	100
2. Retired	54	10
3. (1–2)	495	90
4. Self-employed	146	27
5. Farm operators	85	15
6. (4+5)	231	42
7. Managerial	35	6

[38] L. R. Klein in an analysis of three British surveys reaches a similar conclusion. See his "Patterns of Savings," *op. cit.*, p. 178. The data he shows indicate that the savings of the self-employed were equivalent to about half of total personal saving in 1953-54; in the two previous years, owing to dissaving by some occupational groups and small average savings by others, the savings of the self-employed were actually larger than total personal

The major statistical weakness of survey saving estimates appears to be in the substantial understatement of saving in the form of deposits. If, as is possible, the underreporting was concentrated in the nonbusiness group, the corrected figures might show a lower entrepreneurial share in total personal saving than is indicated by the data presented above.

Aggregative Data

To what extent is the conclusion that a high proportion of personal saving is attributable to entrepreneurs supported by aggregative data? For farm operators, the aggregative data required to answer the question are available, and the comparison works out as follows:

SAVINGS OF FARM OPERATORS AS PER CENT OF TOTAL PERSONAL SAVING

	Morgan's Survey Data	Goldsmith's Aggregative Data
1948	18	20.9
1949	7	11.3

Sources: Morgan, *op. cit.*, p. 536. Goldsmith, *op. cit.*, Vol. I, pp. 353, 756. Consumers durable goods and government insurance, included by Goldsmith in his saving estimates, have been deducted.

Goldsmith's data show that the farm contribution to personal saving in recent decades has been much greater than it was before the great depression. The percentages of personal saving attributed to agriculture are as follows:

1897-1916	−5.0
1917-1928	−2.1
1929-1941	14.5
1946-1949	15.4
1897-1949	7.6
1929-1949	13.8

Source: Goldsmith, *loc. cit.* All percentages are calculated from totals of annual figures.

savings. The difference did not seem attributable solely to the higher incomes of the self-employed.

[39] The percentage cited above (47 per cent) may be an understatement for two reasons: Apparently while the noncorporate assets of most owners of privately held corporations are covered in the self-employed classification, some may be included in the management group. Moreover, some types of assets which the surveys are known to understate are those typically held by the upper-income groups in which entrepreneurs occupy an especially important position. On the other hand, the underestimation of deposits referred to earlier may more than offset these factors. In addition, the estimates of net worth have very substantial margins of error, and net worth reflects capital gains and capital transfers as well as accumulated saving.

[40] Goldsmith, *op. cit.*, Vol. III, p. 123. If automobiles are omitted, the proportion of individuals' net worth attributable to entrepreneurs is increased to 48 per cent. Several items of assets and liabilities are not included: viz., municipal, corporate and foreign bonds,

Goldsmith's estimates of changes in net worth, which are equivalent to saving plus capital transfers and realized and unrealized capital gains, imply that the farm contribution to changes in net worth was at a peak in the first decade of the century (specifically 1901-1912), but was lower in the period 1913-1922 and much lower from 1923 to 1929 and 1930 to 1933 than in subsequent periods.

For nonfarm entrepreneurs, aggregative data do not confirm the survey findings indicating that nonfarm proprietors provide a relatively high proportion of personal saving. The available data actually represent the current business investment of proprietors—offsets to proprietors' total saving—rather than their saving. For this reason these data are discussed more fully in Section IV of the text, which deals with business investment.

Appendix III. Comparison of B.L.S.-Wharton and Klein-Margolis Data

Income and saving estimates (for proprietors and for all units) derived from the B.L.S.-Wharton and Klein-Margolis data are summarized in Table C. The table enables us to examine the income and saving aggregates and distributions upon which the saving-income ratios cited in Table III of the text depend.

Income

When adjustments are made for differences in the dates of reference and in geographical coverage, the B.L.S.-Wharton aggregate income estimate exceeds that derived from the Klein-Margolis data by 5 per cent and falls short of the national accounts figure for family disposable income by about 3 per cent.[41]

Since the average incomes (column 6) for the several income classes are approximately the same in the two sets of data, it is clear that the substantial differences in the distributions of aggregate income (column 2) are attributable mainly to the differences in population weights (column 1). The B.L.S.-Wharton weights are the adjusted ones; when the original weights were used, the distributions of aggregate income were similar to those derived from the Klein-Margolis study.[42]

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privately held mortgages and equity in government trust funds, which are covered in the Federal Reserve-Michigan savings surveys; and currency, personal trust funds, and consumer durables other than automobiles which are not covered in these surveys.

[41] Family disposable income was obtained by deducting personal tax and nontax payments as estimated in *National Income,* 1954 Ed. from family personal income as estimated by S. F. Goldsmith, "Relation of Census Income Distribution Statistics to Other Income Data," *Studies in Income and Wealth,* Vol. 23, forthcoming. The Goldsmith paper also illustrates the tendency for survey data to yield highest relative covering for wage and salary incomes and the lowest for interest and dividends, with entrepreneurial income and rental income in intermediate positions.

[42] The similarity in the distributions when the original weights were applied to B.L.S.-Wharton data was due to the fact that the original B.L.S. distribution of consumer units was more similar to Klein-Margolis than was the adjusted B.L.S. distribution. We should perhaps mention our treatment of the units whose income was given by Klein-Margolis as "not ascertained." In the *Federal Reserve Bulletin* these units are apparently all assigned to some income class, but in the Klein-Margolis article *(op. cit.)* they were shown separately. We simply prorated these units among the several income classes, although the "not ascer-

Table C.—Income and Savings of Unincorporated Business and of All Urban (or Nonfarm) Ubits

	(1) Distribution of Units (per cent)	(2) Aggregate Income (billion dollars)	(3) Aggregate Income (per cent)	(4) Aggregate Saving (billion dollars)	(5) Aggregate Saving (per cent)	(6) Average Income	(7) Saving-Income Ratio (per cent)
A. B.L.S.-Wharton (1950)							
1. All Urban Units							
Under $3,000	40	$ 21,706	17	−$3,385	−60	$ 1,742	−15.6
$ 3,000–4,999	33	41,465	32	225	4	3,934	0.5
$ 5,000– 7,499	17	32,340	25	1,698	30	5,976	5.3
$ 7,500– 9,999	6	14,842	11	1,836	33	8,423[a]	12.4[b]
$10,000 and over	4	19,989	15	5,263	93	15,877[a]	26.3[b]
Total	100	130,342	100	5,637	100	4,147	4.3
2. Unincorporated Businessmen							
Under $3,000	31	1,384	8	−842	−30	1,571	−60.8
$ 3,000– 4,999	23	2,670	14	−196	− 7	4,033	− 7.3
$ 5,000– 7,499	20	3,556	19	352	13	6,110	9.9
$ 7,500– 9,999	12	3,030	17	528	19	8,417	17.4
$10,000 and over	14	7,604	42	2,953	105	18,546	38.8
Total	100	18,244	100	2,795	100	6,302	15.3
B. Klein-Margolis (1948–50)							
1. All nonfarm units							
Under $3,000	52	$ 41,296	27	−2,455	−21	$ 1,728	− 5.9
$ 3,000– 4,999	33	57,642	38	3,897	33	3,839	6.8
$ 5,000– 7,499	10	26,918	18	3,151	27	5,886	11.7
$ 7,500 and over	5	26,918	17	7,206	61	12,268	27.5
Total	100	152,098	100	11,799	100	3,334	7.8
2. Unincorporated businessmen							
Under $3,000	37	1,857	11	−1,057	−25	1,379	−56.9
$ 3,000– 4,999	30	4,226	24	1,039	25	3,875	24.6
$ 5,000– 7,499	18	3,882	22	1,046	25	5,981	26.9
$ 7,500– 9,999	7	2,222	13	1,035	25	8,578	46.6
$10,000 and over	8	5,205	30	2,112	50	17,180	40.6
Total	100	17,392	100	4,175	100	4,768	24.0

[a] Average income for all units with incomes over $7,500 is $11,530.
[b] Ratio for all units with incomes over $7,500 is 20.4 per cent.

Savings

There are large discrepancies between the two sets of saving data shown in Table C that cannot be explained by differences in weights. B.L.S.-Wharton aggregate urban saving is less than half of the Klein-Margolis nonfarm total, and for unincorporated businessmen the B.L.S.-Wharton figure is about two-thirds of the estimate derived from Klein-Margolis. The aggregate level of entrepreneurial saving indicated by the B.L.S.-Wharton data seems closer to the Commerce estimates of changes in unincorporated business equity than are the Federal Reserve-Michigan or Klein-Margolis data, while the reverse is true of nonentrepreneurial (and total) saving where the Federal Reserve-Michigan data seem closer to the Commerce estimates.[43]

tained" group may well have had a large percentage of high-income units. The income distributions we derive from Klein-Margolis appear to be shy on high-income units to about the same degree as the original B.L.S.-Wharton distributions.

[43] Both statements appear to remain valid after conceptual adjustments are made, but the complicated problem of detailed comparison of survey saving estimates with each other and with external statistics will be treated elsewhere.

There is also disagreement in regard to the distribution of saving. The B.L.S.-Wharton data show a much greater concentration of saving. in the top-income group, for all economic units as well as entrepreneurs, with the dissaving of the lowest-income group constituting a larger relative offset to total saving than is the case in the Klein-Margolis data.[44]

Appendix IV. Comparisons of Estimates of Aggregate Personal Saving

As has already been mentioned, the aggregate saving implied by the B.L.S.-Wharton data is much lower than that implied by the Klein-Margolis figures. When these aggregates are compared with each other and with other estimates of total personal saving, the results are as follows:

	1948–50[a]	1950
	(billion dollars)	
Department of Commerce	9.9	12.1
Federal Reserve-Michigan	11.3	14.0
Klein and Margolis	13.1[b]	—
B.L.S.-Wharton	—	7.7[c]

[a] Represent three-year averages.

[b] Figure not given in original source but derived from data in source by methods described in footnote in Table A.

[c] Urban figure of $5.6 billion blown up in proportion to difference between after-tax money income for nation and after-tax money income for urban areas as calculated by Kaitz, *op. cit*

A number of hypotheses can be advanced for the substantially higher saving estimates indicated by the Federal Reserve-Michigan surveys for consumer units generally as compared with the B.L.S.-Wharton data. For example, there is reason to believe that the Federal Reserve-Michigan estimates of saving in the form of home improvements are significantly higher than either the B.L.S.-Wharton or Commerce estimates. While the Federal Reserve-Michigan estimates of saving in this form (as well as in most other forms) have never been shown separately, it is possible to arrive at a very rough order of magnitude of $4 billion in 1950 for all consumer units, including nonentrepreneurs as well as entrepreneurs, by applying a mean expenditure on home improvements of approximately $400 to the 20 per cent of total spending units shown to have saving in this form.[45]

[44] In the B.L.S.-Wharton data the saving of top-income bracket unincorporated businessmen is more than equal to the total saving of the group, the saving of the two next highest income brackets not fully offsetting the dissaving of the two lowest. Indeed, the top-income unincorporated businessmen account for more than half of the total urban saving. In the Klein-Margolis data, on the other hand, proprietors in the highest income group account for only about half of the saving of unincorporated businessmen, and for less than one-fifth of total nonfarm saving.

[45] The 20 per cent figure is taken from the 1951 "Survey of Consumer Finances," Part IV, *Fed. Res. Bull.*, Sept. 1951, XXXVII, 1068. The 1948 mean expenditure on addition, repairs and upkeep, which includes maintenance as well as improvements, was estimated at

The Commerce estimate is much lower, amounting to about $1 billion, with the B.L.S.-Wharton estimate of close to $2.5 billion intermediate between the two.[46]

There are many other conceptual and statistical differences among the B.L.S.-Wharton, Federal Reserve-Michigan and Commerce saving data—some of which are known to have and others that may have a significant effect on the estimates. However, those differences which characterize saving as a whole rather than the saving of entrepreneurs alone are not directly relevant to the present article.

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close to $500 per nonfarm family making such expenditures in the 1949 "Survey of Consumer Finances," Part V, *Fed. Res. Bull.*, Sept. 1949, XXXV, 1046, with a total expenditure of over $6 billion on improvements and maintenance. The median expenditure by home owners reporting outlays for additions, repairs, and upkeep in 1948 was approximately $200; the median addition was estimated at more than $300, while the median amount spent on maintenance was approximately $150. The much higher median addition ($300) than median addition plus maintenance ($200) suggests that the mean addition may have been fully as high as the mean addition plus maintenance (close to $500). Commerce estimates for addition and alterations show little difference between 1948 and 1950, pointing to a 3 per cent decline. The 1955 "Survey of Consumer Finances," "Housing Arrangements of Consumers," *Fed. Res. Bull.*, Aug. 1955, XLI, 866 also indicates that the mean expenditures on additions, repairs and upkeep in 1950 was only slightly below 1948, with well over two-thirds of outlays accounted for by home owners whose individual outlays amounted to more than $500. It should be noted that while there were 52 million spending units in 1950, there were only 40 million nonfarm family units, and there may have been a significant number of spending units other than nonfarm families with mean additions much below the average for nonfarm families. To err on the side of conservatism, a mean addition of $400 was taken as applicable to spending units with additions in 1950.

[46] The Commerce, B.L.S.-Wharton and Federal Reserve-Michigan estimates of home improvements and maintenance combined are more in agreement than are the estimates for improvements alone. Only the latter, of course, enter into saving estimates.

PRINCIPLES OF DEBT MANAGEMENT

By Earl R. Rolph*

The offering of gratuitous advice to finance ministers is an honorable and ancient role of economists. There has been no shortage of pronouncements about how a national debt should be managed.[1] Clear statements of principles are not so plentiful. It is the purpose of this paper to offer a principle appropriate for national debt management.

National debt management shall be taken to refer to any official action, by central banks as well as treasuries, designed to alter the quantity and kinds of a national government's debt obligations outstanding in private domestic hands. Foreign-held national debts and the debts of subsidiary government units are excluded from the inquiry. No attempt is made to distinguish sharply monetary and fiscal policy as usually conceived.

The principle to be elucidated is an efficiency rule; it extends an old idea in economics to another area. An outstanding national debt is looked upon as providing a utility to a government. Different debt combinations may provide the same utility but at different costs to the government. The composition and size of an outstanding national debt is optimal when the marginal utility of each kind of debt instrument is made proportional to its marginal cost.

A national debt is said to have a utility (or, alternatively, a social function) when a government has a preference for some pattern of monetary stability and when an outstanding debt affects expenditures for current output. A national debt of any size as given by past financial practices may be reduced to any figure at all by the simple expedient of substituting created money for debt. A national government has the option of purchasing its outstanding liabilities. An experimental reduction of a national debt by official purchase is objectionable provided that the changes thereby induced in private expenditures are objectionable. The utility of an outstanding debt is its effectiveness in preventing as high a level of private expenditures as would occur if

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[1] See, for example, the symposium "How to Manage the National Debt," by S. E. Harris, L. H. Seltzer, C. C. Abbott, R. A. Musgrave, and A. H. Hansen, *Rev. Econ. Stat.*, Feb. 1949, XXVI, 15-32, and any textbook on public finance or money and banking.

the debt were reduced to zero, when such a high level of private expenditures is contrary to official stabilization objectives.

The marginal utility of an outstanding debt is normally positive, but, like that of whiskey, it can on occasion be negative. Its marginal utility is negative when private expenditures are too low judged in terms of a stabilization goal. Then the debt should be reduced (*i.e.*, money should be substituted for debt) until total private expenditures reach a level consistent with official stabilization policies. The utility of an outstanding debt therefore rises during upswings and falls during downswings of business activity.

The concept of cost of a national debt is troublesome. There are the administrative expenses involved in the issuance and reissuance of particular kinds of debt instruments, the honoring of coupons, and the keeping of records. The main expense is, of course, the interest commitment of the government. An efficiency principle calls for making these costs a minimum for any given utility of a debt combination.

In discussions of economy in government, only rarely is attention directed towards means of curtailing these expenses. Yet the interest expense of many national governments is a substantial item in their budgets, and historically it has often been the largest single item.[2] The lack of concern cannot be attributed to the insignificance of the amount of the costs of an outstanding debt. Nor is it explained simply by the fact that the interest expenditures are classified as transfer payments. The interest expense is usually looked upon as a fixed charge, not subject to control by legislative or administrative decision.

Even though the main cost of an outstanding debt is a type of transfer payment, there are reasons to economize on the amount. A transfer program of a government increases the spending potential of private groups. Devices are needed to offset the inflationary effects of transfers as well as those of government expenditures for current output. Of the offset devices available, taxes are easily the most important. As a practical matter, tax devices are subject to diminishing returns since the greater become the revenue requirements of a government the more it must resort to inferior tax devices.[3] Such considerations as fairness, equity, and economic efficiency in taxation are given less weight as the revenue pressure increases. If, somehow, the substantial transfer payments made by national governments could be eliminated, a revised tax program could be an improved one simply because less stress would need to be

[2] J. S. Mill observed that the interest on the British national debt amounted to about one-half of the government revenues in his day. See *Principles of Political Economy* (Ashley ed.), Book V, Ch. 7, par. 3, p. 879.

[3] A similar point is made by Roy Blough, *The Federal Taxing Process* (New York, 1952), p. 234.

placed upon the selection of tax devices primarily for their revenue potential. This consideration alone suggests the importance of avoiding unnecessary costs in connection with a national debt. Interest costs are subject to the test of economy just as other transfer payments are and for the same reasons.

The precept that a government should attempt to minimize the cost of its outstanding debt in a manner compatible with the social objective of debt management rests then upon two fundamental value judgments: (a) that some level and some changes in the level of private expenditures are from a social point of view superior to others, and (b) that the expense to government for its outstanding debt should be minimized for any given stabilization goal. These value judgments are reasonable in the sense that their denial would conflict with well-entrenched beliefs about the responsibilities of national governments in the contemporary scene.

I. *The Concept of a National Debt*

Certain views about debt management and governmental fiscal operations have already been violated by the suggestion that an outstanding debt has a utility to a government. Anyone whose ideas have been framed by the current textbook literature, and, I am afraid, the technical literature as well, "knows" that government borrowing is a stimulating and debt retirement a deflationary policy. The impression has been created that rising national debts are necessary if government finance is to exert a stimulating influence in growing societies.[4] Just what is meant by statements that government borrowing is inflationary or that debt retirement is deflationary? Taken literally, such statements are patently untrue. Official sales of government debt, for example, induce higher rates of interest. Would anyone claim that official measures that raise rates of interest are inflationary? Nothing so crude as this can be intended. What is presumably meant is that a government deficit of a given size plus government borrowing of an equal amount together raise the level of national income.[5] The validity of this proposi-

[4] See, for example, S. E. Harris, *The National Debt and the New Economics* (New York, 1947).

[5] There are difficulties with this proposition. One is the implicit theory that the combined effects of government expenditures, transfer formulae and tax formulae can somehow be reduced to the effects of a budget deficit and surplus. In some fiscal theories, this view is repudiated. Another is the assumption that the stimulating effect of a deficit, granted that this method of statement makes sense, is greater than the deflationary effect of the sale of an equal amount of debt. Systematic demonstrations of this position are surprisingly rare. William Fellner, who has pursued the question, poses the issue in terms of the comparative effect of a given marginal increase in government expenditures for goods and services and an equal dollar increase in the sale of government securities. His results vary from an increase in gross national product equal to the increase in government expendi-

tion need not for the moment concern us. What does matter is the idea that the change in a government's debt depends rigidly upon the size of its budget surplus or deficit. Those who look forward to persistent increases in public debts presumably do so, not out of love of large public debts, but because they view this development as a necessary by-product of a stimulating tax-expenditure policy.[6]

Yet there is no economic requirement that a national government allow the budget facts to dictate the change in its outstanding debt. Indeed, any budgeting unit has greater freedom than this because deficits or surpluses may be covered by release or absorption of cash. Persistent surpluses can be tolerated indefinitely; anyone is free to hold more cash. A person or a business, however, experiencing persistent deficits runs up against the combined constraints of his dwindling assets and impaired borrowing power. But a national government is not subject to these constraints in dealing with its own people. A sovereign government can obtain whatever amounts of cash it wishes. A central bank has become the standard instrument to provide national governments with unlimited funds.

To obtain a concept of a national debt that reflects this choice open to debt officials, we need to restrict the definition of a national debt to those obligations of a government that are held outside official agencies including, especially, a central bank. The *net debt* or the *outstanding debt* of a national government may therefore be defined as those contractual obligations of a national government and its agencies.[7] Agencies include all government corporations as well as the central bank. The change in the size of the outstanding net national debt is an independent variable subject to the control of official groups. We are not bound to suppose that a national government must either sell debt or tax in order to finance itself.

II. *Effect of Debt Operations upon Private Expenditures*

Our first main proposition is that an increase in the size of the net

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tures at one limit to a contraction of unspecified amount at the other. See his *Monetary Policies and Full Employment,* 2nd ed. (University of California Press, 1947), pp. 174-85; also Hugo Hegeland, *The Quantity Theory of Money* (Goteborg, Sweden, 1951), pp. 228-40.

[6] This appears to be A. H. Hansen's position. After observing that future expansion of the economy will require large increases in the quantity of money, he writes: "It is not probable that this could happen without a substantial increase in the public debt." *Monetary Theory and Fiscal Policy* (New York, 1949), p. 195.

[7] This concept of a national debt is, I suggest, the relevant one for economic analysis. An exchange of assets between a Treasury department and a government corporation or between a Treasury department and the central bank is a bookkeeping arrangement. What matters is the increase or decrease in the government's debt in private hands. We have

debt of a national government, given the debt composition, has the effect of *decreasing*, and a decrease in the net debt has the effect of *increasing*, GNP expenditures. It is elementary that the sale of government securities by a central bank is a deflationary policy. We simply generalize this observation to sales of government debt by any official agency.

The defense of this proposition is identical with the defense of monetary policy. It would be inappropriate to attempt a full-dress defense of that position here.[8] Happily skepticism about the efficacy of monetary policy appears to have dwindled in professional circles.[9]

There are, however, a number of ways to explain the effect of government debt operations on private expenditures. One way relates debt change to the rate of interest and the rate of interest to national income through an investment schedule. This method is denied us because it presupposes that the pattern of rates of interest can be reduced to a unique rate, whereas the analysis to follow requires that the pattern of rates be a variable.[10] A related approach, but one that

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long become accustomed to view the quantity of currency as consisting of currency outside the hands of official agencies. For the same reason, the stacks of national debt held by the government and its central bank should not be counted as debt that matters.

[8] Of the various systems of the determinants of aggregate expenditures, the neo-Keynesian position, as employed for example to demonstrate the balanced-budget theorem, would presumably imply that debt operations are without effect. Government expenditures and private investment are treated as autonomous, *i.e.*, unexplained, and consumption is treated exclusively as a function of current income after taxes. There is nothing left for interest rates and hence for government debt policy to influence. For a clear exposition of this point of view, see P. A. Samuelson, "The Simple Mathematics of Income Determination," in L. A. Metzler *et al; Income, Employment and Public Policy, Essays in honor of Alvin H. Hansen* (New York, 1948), pp. 133-55.

The original Keynesian position, at least as expounded by Keynes, implies that debt sales are deflationary except when "the" rate of interest has reached its floor, since investment is treated as a (negative) function of rates of interest.

The-quantity-of money approach and the cash-balance doctrine give similar results because official debt sales decrease and debt purchases increase the quantity of privately owned money, and expenditures are treated as functionally related to the money supply.

The asset position, which the present writer finds congenial, makes both private consumption and investment expenditures depend upon the capital values of assets and hence upon their yields, and debt operations are functionally related to capital values. See Rolph, *The Theory of Fiscal Economics* (Berkeley, 1954), Ch. 5.

[9] Skepticism does continue to survive; witness the views of W. L. Smith ("On the Effectiveness of Monetary Policy," *Am. Econ. Rev.*, Sept. 1956, XLVI, 588-606). Like others before him, Smith somewhat spoils the purity of his position by allowing that monetary policy may work too well (*ibid.*, p. 599, bottom).

[10] There are other serious difficulties with this approach. A fundamental one is the justification of a negatively sloped investment schedule. In this connection, see A. P. Lerner, "On the Marginal Product of Capital and the Marginal Efficiency of Investment," *Jour. Pol. Econ.*, Feb. 1953, LXI, 1-14; and J. A. Stockfisch, "The Relationships between Money Cost, Investment, and the Rate of Return," *Quart. Jour. Econ.*, May 1956, LXX, 295-302.

does not require the assumption of a single rate of interest, examines the effects of debt operations through their influence upon the money demands for goods and services. This approach is used here.

A change in the outstanding debt, say an increase, means that official agencies succeed in persuading people and organizations to hold public debt instead of holding other things. The necessary and sufficient condition for getting any good, including government debt, out of government hands and into private hands through a market mechanism is a reduction in the price of the good as compared to what it would be if the government offer to sell were not made. It is sufficient for this conclusion that the amount demanded of anything be a negative function of price.

If the other things that debt buyers are persuaded not to hold consist entirely of money, the government obtains cash that by definition would not have been used to finance anything else. In this limiting case, the sale of more debt has a zero direct deflationary effect on private expenditures. But the necessary condition for this limiting case is that government debt and money be treated as perfect substitutes by each debt buyer. Ordinary observation suggests however that government debt and cash are not generally so treated. People do not shift altogether out of holding cash and into holding debt as the result of a slight reduction in the prices of debt. Rather they are found to hold both debt and cash in the face of large variations in the prices of debt. Thus an increase in the outstanding debt is accomplished by inducing people to give up the holding of cash and other assets. This behavior means that the money demand schedules for these other assets are pushed downward by a positive debt operation. Similarly a reduction in the outstanding debt increases money demands for other things, except in the limiting case when people and organizations who hold debt treat it as a perfect substitute for money.

III. *Effect of a Changing Composition of Public Debt*

The second main proposition is that different kinds of national debt instruments may have different utilities per dollar to a government. In order to show that this is possible, it is first necessary to demonstrate that public debt instruments are not generally treated as perfect substitutes. If they were so treated, some investors should be found holding all of one form; or if found holding more than one, they should be prepared to make all-or-none choices among debt forms. An investor found holding bonds and bills should in the event of a slight rise in the yield of bonds part with all of his bills. We know that holders of government debt commonly hold various public debt forms and continue to do so in

the face of variations of yields. Various debt forms are different, although related, commodities.[11]

Granted that various debt forms are not a homogeneous commodity, the hypothesis may be advanced that the utility of various public debt forms is positively correlated with their maturity. A shift in the composition of an outstanding public debt of given size that reduces its average maturity increases private expenditures, and vice versa for increases in its average maturity. Like any empirical generalization, this proposition does not hold for all circumstances.

The conditions necessary for the hypothesis are twofold: (a) of various public debt forms, the shorter their life expectancy, the more they must possess the characteristics here called "moneyness," and (b) the marginal utility of the moneyness of assets must be positive. By the moneyness of an asset we mean that its realizable price is predetermined and known for any future date.[12] Thus an asset other than cash—demand deposits and currency—has a maximum of moneyness when it is exactly like cash except in not being spendable as such. Savings deposits ordinarily fill this requirement precisely. So do many demand forms of government debt such as U.S. savings bonds. Short-term government debt does not fulfill this requirement exactly because some variation can occur in the price of the instrument during its life that cannot always be confidently predicted in advance. Yet the description of such holdings as "liquid" or "protective" assets among financial practitioners is based on the fact that the prices of such instruments can vary only within narrow limits during relevant periods. By contrast, the longest maturity conceivable—a perpetuity—exposes its holder to the possibility of large gains or losses; it is unlike money. It was this observation that led Henry Simons to describe government-issued perpetuities as "pure" debt.[13]

[11] This observation should not be interpreted to imply that markets for government securities are necessarily imperfect or, in deference to E. H. Chamberlin, characterized as imbued with monopolistic elements. The market for U. S. Treasury bills may be perfectly competitive and so may the market for 30-year bonds without implying that bills and bonds are the same commodity.

[12] F. Modigliani objects to a similar concept employed by J. R. Hicks on the following grounds: "Whatever one's definition of liquidity, to say that a government bond, a speculative share, a house, are money in different degrees, can at best generate unnecessary confusion. It is true that money and securities are close substitutes, but this connection is to be found elsewhere than in degrees of moneyness . . . " ("Liquidity Preference and the Theory of Interest and Money," *Econometrica*, Jan. 1944, XII, 45-88, reprinted in *Readings in Monetary Theory*, p. 235.) Yet his claim that securities and money are closer substitutes than are money and real assets presupposes that there is something special about securities that makes them substitutes for cash. I suggest that this something needs a name, and "moneyness" seems as good as any.

[13] See Henry Simons, "On Debt Policy," *Jour. Pol. Econ.*, Dec. 1944, LII, 356-61. Simons viewed short-term instruments as partly money.

For long-term public debt forms to be more effective in curtailing private expenditures per dollar outstanding than short-term, it is also necessary that the marginal utility of the moneyness of assets be positive. For if it were to be zero, investors would look only to the income in holding or acquiring assets, and the perfect substitution assumption, so often found in theoretical discussions, would come back into its own.[14] Since it may be assumed that the marginal utility of future income is always positive—this is a necessary condition for the functioning of a money-price system—the condition that the marginal utility of the moneyness of assets be positive implies that the subjective or computed yields of securities vary inversely with their degree of moneyness.[15]

The condition that the marginal utility of the moneyness of debts must be positive applies, but in the negative sense, to debtors as well. If yields were positively correlated with maturity, and if debtors were completely indifferent about the maturities of their obligations, they could always gain by concentrating their debt in the shortest form. Consequently only short-term private securities would be left outstanding or the yields of securities of different maturity would become equal. In the latter event, the marginal utility of the extra moneyness of short-term securities would become zero.

If our twin conditions are satisfied, namely that shorter-term obligations possess stronger money characteristics than long-term public debt and that the marginal utility of the moneyness of assets is generally positive, an official debt operation designed to shorten the average maturity of the public debt becomes an inflationary measure.

To establish this result, let us examine a case least favorable for it, namely one in which public debts have no moneyness features not shared by private debts. Suppose that private debts are treated, ma-

[14] If the only relevant dimension of debts is the yield, they become homogeneous commodities because future dollar income is inherently homogeneous.

[15] Subjective yields may differ from market yields to maturity for many reasons, such as tax considerations or anticipations of changes in the capital value of the asset. However, the point of view here adopted is inconsistent with the type of expectation theory to explain differences among market yields to maturity presented, for example, by F. H. Lutz and J. R. Hicks. That position makes the strong requirement that any one investor should select securities only on the basis of income. If he is found holding one-year maturities yielding 4 per cent and two-year maturities yielding 5 per cent, he is assumed to expect that the yield on one-year maturities will a year hence rise to approximately 6 per cent. This requirement means that all debt forms when classified by maturity must be perfect substitutes. See F. H. Lutz, "The Structure of Interest Rates," *Quart. Jour. Econ.*, Nov. 1940, LV, 36-63, reprinted in *Readings on the Theory of Income Distribution*, pp. 512-20; and J. R. Hicks, *Value and Capital* (Oxford, 1939), pp. 144-52. Hicks, unlike Lutz, tries to have it both ways holding that interest is to be explained by the degree of departure of an asset from being like money—degrees of illiquidity—and that income is the only relevant dimension of debts. This inconsistency is alluded to by Lutz, *op. cit.*, p. 528.

turity for maturity, as perfect substitutes of public debts. In addition, suppose that borrowers can sell debts of any maturity they please and can do so under competitive conditions. Consider, then, the position of a representative borrower. To satisfy the condition that the marginal utility of the moneyness of assets is positive for him, he will be in equilibrium with respect to a distribution of maturities of his outstanding obligations only when the market yields of his debts increase with the remoteness of their maturity. In the absence of objective constraints, other than differences in yields, on the maturity distribution of his debts, a representative borrower would prefer longer to shorter obligations at the same yields because of the correspondingly reduced necessity for maintaining a liquid position.[16] A central bank or treasury operation designed to shorten the average maturity of public debt calls for the purchase in the market of long-term bonds and the sale of an equal amount of short-term bills, thus lowering the yields of bonds and raising those of bills. This altered pattern of yields induces our representative borrower, granted no change in his preferences, to shift his debts toward the longer maturities. Since he prefers longer-term to shorter-term obligations at the same yields, he now finds that it costs relatively less to satisfy this preference. Thus his adjustment may appear simply to offset the official maneuver.

However, from his point of view his entire position now entails less of something he dislikes, namely risk—the negative of moneyness; and the marginal disutility of risk increases with increasing risk.[17] People will bet small sums when they will not bet large sums at the same odds. Applied to a borrower's asset position, our theory means that he now will be willing to take more risk than he would have before because his liability position entails less risk. But taking more risk is another way of saying that he will be inclined to hold less cash since cash is the safest possible asset to hold. In other words, he is induced to acquire more real assets.

This conclusion is not upset if creditors refuse to regard private debts as providing the moneyness features associated with public debts. In fact, a large segment of private debt contracts are entailed assets. The creditor is expected to hold them for the life of the contract. In such circumstances, short-term private debts are not good substitutes for short-term public debts; they are closer substitutes for those public obligations held mainly for income purposes, that is, public bonds.

[16] The assumed conditions rule out credit rationing such that lenders discriminate against particular borrowers. They do not rule out consideration by lenders of the risk position of a borrower.

[17] For a good defense of this view, see E. D. Domar and R. A. Musgrave, "Proportional Taxation and Risk-Taking," *Quart. Jour. Econ.*, May 1944, LVIII, 388-422.

An official operation designed to shorten the average life-expectancy of the public debt remains stimulating because the addition of bills to the market induces investors to hold less cash while not affecting their inclination to hold short-term private debts, and at the same time the subtraction of long-term debt induces creditors to offer more attractive terms to private borrowers at all maturities.

The above argument may be unnecessary for those to whom it is intuitively obvious that long-term public debt is less like money than short-term. However, our twin conditions do help in making judgments about the circumstances under which the hypothesis will not hold. In countries, for example, where the local population has limited trust in the obligations of their governments, all public debt obligations may be treated as unlike money. The assumption of investors in Western countries that the obligations of their governments are free of default risk is not shared by the people of some of the less developed countries, and often for good reasons. What is more important, however, is the failure of the condition that the marginal utility of the moneyness of assets is generally positive. In many countries, the experience of persistent inflation appears to have undermined a taste for domestic money and moneylike assets.

For Western countries, at least for the period since 1930, the twin conditions appear to have been generally satisfied. Individuals as well as organizations have exhibited a positive liking for assets because of their moneyness features. The success of governments in pouring out huge quantities of demand forms of government debt as well as short-term debts at yields less than, and often much less than, the yields on long-term debts strongly suggests, but of course does not prove, that the marginal utility of the moneyness of assets has generally been positive. People have indicated a willingness to pay something in foregone income to possess securities for their moneylike features. Whether this set of tastes can be expected to endure is of course a speculation.[18]

IV. *Optimum Size and Composition of Public Debt*

Our two basic propositions may now be represented graphically. Let government debt be grouped into two classes, say, 90-day bills and 30-year bonds. In Figure 1, along the vertical axis measure the amount of 90-day bills, and along the horizontal axis, units of 30-year bonds. In both cases, the unit is the maturity value in dollars. Suppose that the amounts of debt inherited from the past are those shown by point Q.

[18] Prior to 1914, short-term rates were commonly above long-term rates—a fact that seriously damages a liquidity or moneyness approach to explain differences in yields. The authoritative empirical study of this experience is the work of F. R. Macaulay, *Some Theoretical Problems Suggested by the Movement of Interest Rates, Bond Yields and Stock Prices in the United States since 1856* (New York, 1938).

Then the 45° line *VM* is a constant-debt line. The curves G_4, G_3, G_2, and G_1, are (private) GNP isoquants. A GNP isoquant shows the combinations of short-term and long-term debt that leave private expenditures upon current output unchanged, given the public debt inherited from the past and given all remaining government financial policies.[19]

The relations among the isoquants are as follows: Consider the point *Q*, the quantity of debt inherited from the past. Let official

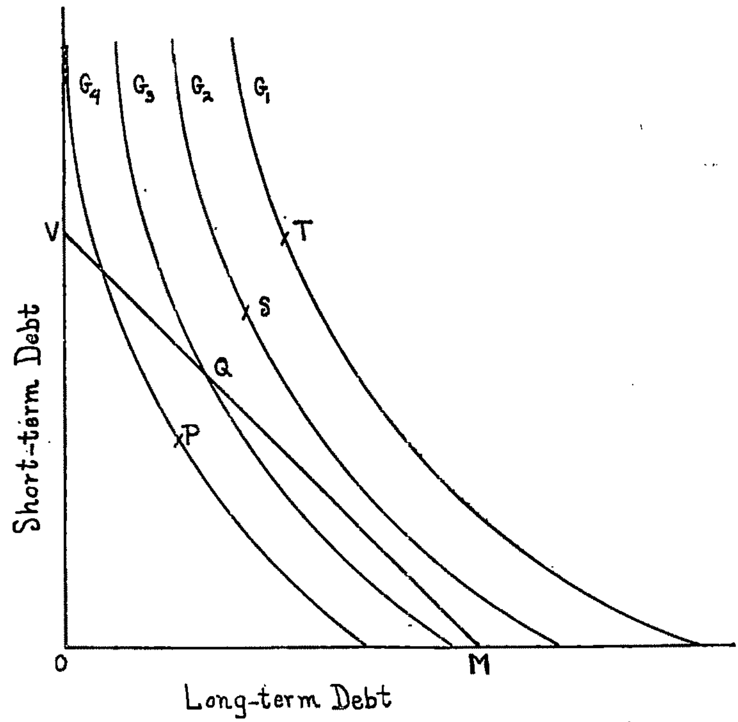

FIGURE 1

agencies decrease the debt without altering the composition, giving the combination shown as *P* on the isoquant G_4. Then G_4 shows all combinations of short- and long-term government debt that provide the same level of GNP expenditures as found for point *P*. The G_4 curve

[19] In the realm of fiscal measures other than debt measures, the conditions mean that government expenditures are treated as given, and its subsidy and tax formulae (not their yields) are also treated as given. In the realm of monetary measures, other than debt measures, the customary or legal reserve requirements of banks are to be treated as invariant, and any access to central bank funds except by open-market operations is excluded. These *ceteris paribus* conditions are necessary to avoid mixing the effects of the debt operations with the effects of other fiscal and monetary policies. Once the effects of each class of policies have been determined, integrated analysis of the combined effects of any combination of official monetary, debt, and fiscal acts becomes possible.

also indicates a higher level of private expenditures upon current output than that given by the curve G_3. Similarly, points S and T on curves G_2 and G_1 represent combinations of outstanding debt resulting in successively more deflation, *i.e.*, lower levels of private expenditures upon current output. The economic justification of this representation is our first fundamental proposition: a decrease in the outstanding government debt with composition unchanged, increases private expenditures and an increase in debt decreases private expenditures.

The slopes of the G curves follow from the proposition that short-term debt has less utility per dollar (maturity value) than has long-term debt. This condition means that the isoquants cut the VM line from above (the negative slope of any one G curve is greater than that of the VM line). Let us suppose, for example, that government policy is intended to make the outstanding debt have the same effect upon private expenditures as that given by the amout of debt inherited from the past; the objective is to remain on the G_3 curve. If it is also desired to increase the proportion of long-term debt there must be a reduction in the total debt; otherwise the objective of leaving private expenditures unchanged would be defeated. To offset the deflationary effect of the increase in the proportion of long-term debt, the government should simultaneously increase the quantity of money.[20]

The most efficient method of managing the debt is found when the utility of debt, the realization of some level of private expenditures upon current output, is obtained at the minimum expense. The main cost, annual interest expense, depends mainly upon the size of the debt, its composition and the price or yield of the securities.[21]

[20] The G curves must be convex to the origin because, as successive substitutions of short-term for long-term debt are made, total debt increases and the money supply decreases. But the successive substitutions of short-term debt, *per unit* of long-term debt withdrawn, must necessarily increase because short-term debt becomes an increasingly poor substitute for money as the supply of money decreases. A similar analysis will show that the curves must also be convex for decreases in short-term and increases in long-term debt.

[21] Theoretically, since interest on government debt is a form of transfer income, the expense to the government should be measured by the interest paid to private groups minus the tax liability occasioned by the interest. This factor is of importance for our topic only if there is a significant difference between the tax liability per dollar of interest paid on short-term and on long-term government debt. Tax treatment of interest on government debt varies widely among countries; it is still common to exempt such income altogether under income tax laws. Furthermore even in countries that appear to subject interest income from government debt to the same tax treatment as other income, the channeling of this income through financial intermediaries such as insurance companies serves to dissipate the amount that becomes reportable income to individuals, especially when, as in the United States, the accrued interest on life insurance policies is tax exempt. Whether, on balance, these and other considerations result in differences in the effective rate of income taxation of the interest on different classes of federal government securities in the United States is a nice questions to which no definite answer can as yet be given.

commitment of the government as the interest cost at point Q. Iso-interest curves may be expected to be concave. For example, at point Q, \$1 of bonds carries the same interest expense as \$2 of bills. As bills are added and bonds subtracted from the market, the yields on bills will rise and those on bonds will fall. Then, moving from the combination given by Q, increasingly smaller amounts of bills must be substituted for a given amount of bonds if total interest costs are to be held constant. Thus the C curves are concave or linear. They are linear in the limiting case when bills and bonds are generally treated as perfect substitutes. A lower curve such as C_1 is defined as the combination of debt that results in the same expense as the combination shown by T. The interest cost is lower for C_1 than for C_2 because the debt has been reduced and the rates of interest on both short- and long-term securities are lower.

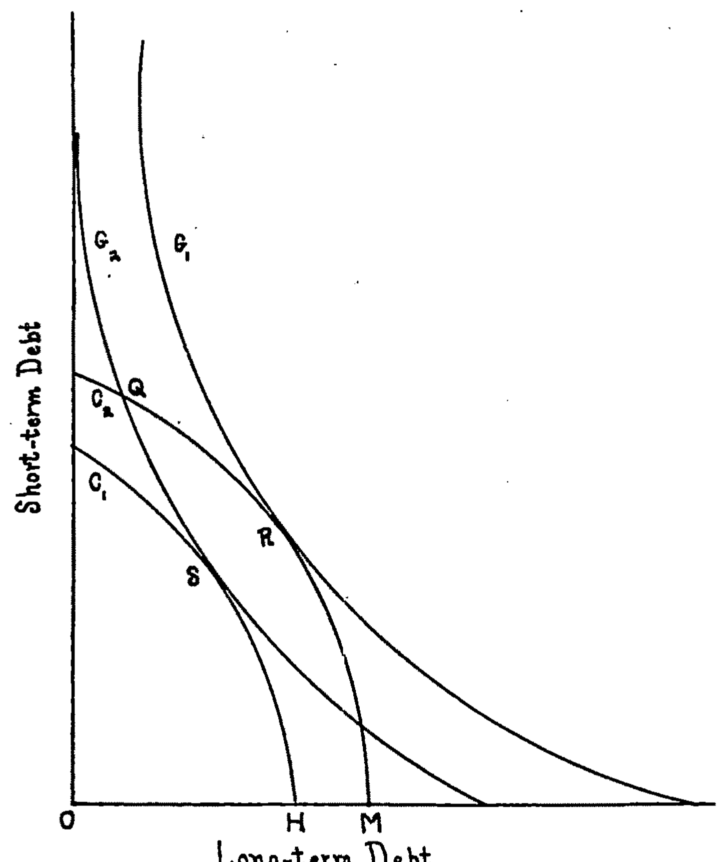

FIGURE 3

When the C curves of Figure 2 are placed together with the G curves of Figure 1, the optimum solution emerges as shown in Figure 3. With the initial amount of debt at Q, the interest expense is that indicated by the iso-interest curve C_2. If the policy is to obtain the level of private expenditures indicated by G_2, the debt is too large and the proportion of short-term debt is also too great. To obtain the optimum solution, the composition should be changed by increasing the proportion of long-term debt and the entire debt should be reduced. This result is given by the tangency solution shown as point S. There is a saving in interest expense indicated by the difference between the interest cost for C_2 combinations and that for C_1 combinations. This saving will be mainly at the expense of those organizations and persons in the economy who like to hold large amounts of short-term government securities.

Our solution remains subject to two restrictions: The assumptions that a national debt consists of two classes of securities only and that current rates of interest accurately measure the cost to the government of an outstanding debt. Only the former will be considered in detail.[22]

Instead of two classes of securities, let the kinds of government debt outstanding vary from some minimum maturity, say one day, to some maximum, say a perpetuity. The market-yield curve Y_m in Figure 4 shows the yield-maturity relation observed at any date. Y_m is positively sloped to reflect the fact that actual market-yield curves have exhibited this characteristic for many years.[23] From this market-yield curve, we may construct what may be called an economic-yield curve, shown as Y_e. An economic-yield curve is derived from two functional relations, the market-yield curve as shown and a variable multiplier. The variable multiplier refers to the number of units of government debt measured in par values required to make a given change in private expenditures upon current output. Suppose, for example, that the sale of \$1.00 of debt of 25-year maturity or greater would reduce private expenditures by \$1.00. Then if the sale of some shorter maturity, say 20 years, reduces private expenditures by less than \$1.00, more than \$1.00 of 20-year maturity debt is required to have the same GNP effect as \$1.00 of 25-year maturity debt. As the maturity approaches zero, government debt approaches being money and the multiplier ap-

[22] The use of current yields to measure the interest cost of an outstanding debt ignores the possible capital gains or losses a government may experience in debt management. Since even an abbreviated analysis of this aspect of the topic is rather involved and has not resulted in any important revision of the basic point of view, the question will be passed over.

[23] Yield-maturity curves for U.S. federal securities have exhibited positive slopes since about 1933. In earlier years, flat curves and even negatively sloped curves are sometimes found.

proaches a maximum. If empirical information on the variable multiplier can be secured, any point on the Y_e curve may be derived. Select, say, point S on curve Y_e. The distance RM is the market yield of a unit of debt of that maturity, say, 3 per cent. Let one and one-half units of debt of this maturity have the same GNP effect as \$1.00 of debt of 25-year maturity. Therefore the distance SM is obtained by multiplying the distance RM by one and one-half. The effectiveness of debt

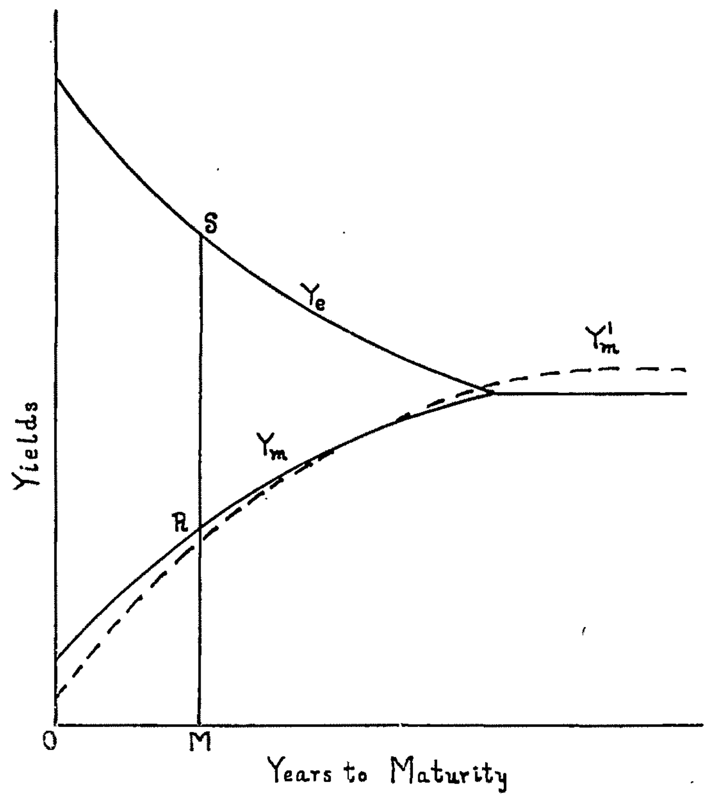

FIGURE 4

—the size of the multiplier—is a decreasing function of the maturity of the debt up to some point.

Economical debt management calls ideally for making the Y_e curve a straight horizontal line. The interest on a national debt is a minimum when the interest cost of each type of debt instrument per dollar of "product" (*i.e.*, change in private expenditures) is equal. Then if at any given time the composition of a government debt is such that its economic-yield curve is negatively sloped, the short-term end of the economic-yield curve should be lowered and the long-term end raised.

This result is accomplished by retiring short-term maturities and selling long-term, and, if an unchanged level of GNP expenditures is desired, by reducing the total debt. In the process of doing this, the market-yield curve will twist, with the lower end shifting down and upper end shifting up, somewhat as shown by the dotted line Y'_m. As this shift occurs, the economic yield curve tends to flatten out and if the job is done perfectly, it becomes a straight line.[24]

V. *Debt Policy and Commercial Banks*

An outstanding public debt will have a utility to a government regardless of the kind of commercial banking system, provided that banks operate under financial constraints. As already observed (see Section II), sale of debt by official agencies is a deflationary operation except in the limiting case when buyers treat government debt as a perfect substitute for cash. A strong government can, for example, decree that government debt of certain types shall constitute legal reserves for banks and make its debt a kind of money for banks. Alternatively, a central bank may announce that the prices of each kind of government debt will be fixed and, provided the announcement is accepted in good faith, make the debt a kind of income-yielding money. The crucial aspect of these and many other schemes is the inducement made to banks to treat government debt as a perfect substitute for cash. To the extent that such schemes are successful, and in recent wartime financing they were successful, the government persuades banks to create money for government account without imposing any restrictions upon their power to create money for private account.

But if banks are subject to effective reserve requirements, whether set by law, custom, or prudent practice, the acquisition of any earning asset including government debt is subject to constraints. If any one bank is induced to hold more government debt, it must forego the acquisition of other assets. The position of a bank in this connection does not differ in principle from that of an individual or an insurance company. All have limited means; all must make competing choices with respect to asset holdings. Thus a government's sale of debt which happens to be purchased by banks reduces the demands of the latter for other assets.

[24] If debts of all maturities have the same effect upon private expenditures, the multiplier is invariant, and the economic-yield curve coincides with the market-yield curve. In this event, a government should behave just as if it were a private operator in the market and look only to keeping its interest expense a minimum. The debt should be concentrated in the shortest maturity that is practicable in view of administrative costs, unless the market-yield curve becomes flat before all of the debt can be shifted.

A banking system of money does influence the utility of an outstanding debt and also affects the comparative utility of different debt forms. The peculiarities of a banking system of money arise from the fact that liabilities of a particular kind of private organization are money and that these organizations can change the quantity of this money by their own operations. It is the latter fact that has special relevance for the present topic. If reserve requirements were 100 per cent, a banking system of money would differ only in inconsequential details from a pure government currency system. Banks would have lost their power to create and destroy money—a main reason advocates of a 100 per cent reserve system urge its adoption. We may analyze the role of fractional reserve systems with respect to debt management by comparing such systems with a 100 per cent reserve system.[25]

The lower the reserve requirements of banks, however established, the greater, *ceteris paribus,* is the utility of an outstanding debt to a government. An experimental reduction of an outstanding debt by the substitution of central-bank-created money for debt permits banks as a group to multiply their holdings of earning assets. The multiplier is of course the reciprocal of the reserve ratio. Thus the lower reserve requirements are, the greater will be the inflationary effect of debt reduction and hence the greater is the utility of an outstanding debt to a government. This observation is simply another facet of the well-established theory that fractional reserves provide a more sensitive financial structure than do 100 per cent reserve systems.[26]

Fractional reserve systems also tend to reduce the utility of short-term relative to long-term government debt. With fractional reserves, banks need to hold some of their assets in forms that they regard as similar to cash to provide for contingencies such as large adverse clearing drains. By contrast, with 100 per cent reserves, or more generally, higher as opposed to lower reserve ratios, the needs of banks for cash-like assets are satisfied more by the reserves themselves. The marginal utility of the moneyness of assets may be expected to diminish. In addition, larger as opposed to smaller reserve ratios result in a smaller income from banking, and the marginal utility of income may be expected to be greater on this account. This factor would operate in the direction of inducing banks to sacrifice liquidity to obtain more income and hence hold more of their assets in long-term government bonds. An experimental shift in the composition of an outstanding public debt in the direction of lowering its average maturity may, therefore, be expected to be more expansionary under a lower as compared with

[25] There is no intent here to argue in favor of or against the 100 per cent reserve plan.

[26] See J. G. Gurley and E. S. Shaw, "Financial Aspects of Economic Development," *Am. Econ. Rev.*, Sept. 1955, XLV, p. 536.

a higher set of reserve ratios.[27] The institution of a fractional reserve system of banking does not upset the principle that debt management is conducted most efficiently when the marginal utility of each public debt form is made proportional to its marginal cost.

VI. *Concluding Remarks*

There remains untouched the crucial question of how to implement the suggested principle. Such a task would be far from simple; in fact no government could expect to achieve the precise size and composition of debt forms called for by the rule. Yet it is not an objection to a principle that it may be difficult to implement. Its role is to give direction to policy, to permit students and others to agree upon what constitutes relevant information, and to indicate types of financial administration most appropriate for the realization of rational decisions. As such, the principle is offered as a guide for debt management (including open-market operations) in the same spirit that the principle of marginal cost pricing has been offered as a guide for the regulation of public utility prices, and indeed for analogous reasons.

[27] This suggests that the spread in yields of public securities classified by maturity is a function of reserve ratios.

INTERNATIONAL TRADE AND FACTOR MOBILITY

By Robert A. Mundell*

Commodity movements are at least to some extent a substitute for factor movements. The absence of trade impediments implies *commodity*-price equalization and, even when factors are immobile, a tendency toward *factor*-price equalization. It is equally true that perfect mobility of factors results in *factor*-price equalization and, even when commodity movements cannot take place, in a tendency toward *commodity*-price equalization.

There are two extreme cases between which are to be found the conditions in the real world: there may be perfect factor mobility but no trade, or factor immobility with unrestricted trade. The classical economists generally chose the special case where factors of production were internationally immobile.

This paper will describe some of the effects of relaxing the latter assumption, allowing not only commodity movements but also some degree of factor mobility. Specifically it will show that an increase in trade impediments stimulates factor movements and that an increase in restrictions to factor movements stimulates trade.[1] It will also make more specific an old argument for protection.

I. *Trade Impediments Stimulate Factor Movements*

Under certain rigorous assumptions the substitution of commodity for factor movements will be complete. In a two-country two-commodity two-factor model, commodity-price equalization is sufficient to ensure factor-price equalization and factor-price equalization is sufficient to ensure commodity-price equalization if: (a) production functions are homogeneous of the first degree (*i.e.*, if marginal productivities, relatively and absolutely, depend only on the proportions in which factors are combined) and are identical in both countries; (b) one

* The author, a postdoctoral fellow in political economy at the University of Chicago, has benefited considerably from the suggestions and criticisms of M. Corden, M. Friedman, A. Harberger, H. G. Johnson, R. Lipsey, J. E. Meade, S. A. Ozga and T. Rybczynski. Any mistakes that remain are his responsibility.

[1] This proposition is implied in Bertil Ohlin, *Interregional and International Trade* (Cambridge, 1935), Ch. 9; Carl Iversen, *Aspects of the Theory of International Capital Movements* (London, 1935), Ch. 2; and J. E. Meade, *Trade and Welfare* (London, 1955), Ch. 21, 22.

commodity requires a greater proportion of one factor than the other commodity at any factor prices at all points on any production function; and (c) factor endowments are such as to exclude specialization.[2]

These assumptions are not always satisfied in the real world, so a model employing them is somewhat limited. But they do isolate some important influences determining the pattern of international trade and for present purposes will be adhered to. It will become clear later that relaxing them does not seriously affect the conclusions of the paper.

First we shall show that an increase in trade impediments encourages factor movements, and to do this we shall make some rather drastic assumptions regarding mobility. Assume two countries, A and B, two commodities, cotton and steel, and two factors, labor and capital.[3] Country A is well endowed with labor but poorly endowed with capital relative to country B; cotton is labor-intensive relative to steel. For expositional convenience we shall use commodity indifference curves.

For the moment we shall assume that country B is the rest of the world and that country A is so small in relation to B that its production conditions and factor endowments can have no effect on prices in B.[4]

Let us begin with a situation where factors are immobile between A and B but where impediments to trade are absent. This results in commodity- and factor-price equalization. Country A exports its labor-intensive product, cotton, in exchange for steel. Equilibrium is represented in Figure 1: TT is A's transformation function (production-possibility curve), production is at P and consumption is at S. Country A is exporting PR of cotton and importing RS of steel. Her income in terms of steel or cotton is OY.

Suppose now that some exogenous factor removes all impediments to the movement of capital. Clearly since the marginal product of capital is the same in both A and B no capital movement will take place and equilibrium will remain where it is. But now assume that A imposes a tariff on steel and for simplicity make it prohibitive.[5] Initially the price of steel will rise relative to the price of cotton in A and both production and consumption will move to Q, the autarky (economic self-

[2] For the necessity of these assumptions and a fairly complete list of references to the literature on factor-price equalization see P. A. Samuelson, "Prices of Factors and Goods in General Equilibrium," *Rev. Econ. Stud.*, 1953-54, XXI (1), 1-21.

[3] Capital is here considered a physical, homogeneous factor which does not create any balance-of-payments problems when it moves internationally. It is further assumed that capitalists qua consuming units do not move with their capital, so national taste patterns are unaltered.

[4] It will become evident in Section II that the terms of trade and factor prices do not change even if A is fairly large.

[5] Actually, under the assumed conditions any tariff is prohibitive, as will eventually become clear.

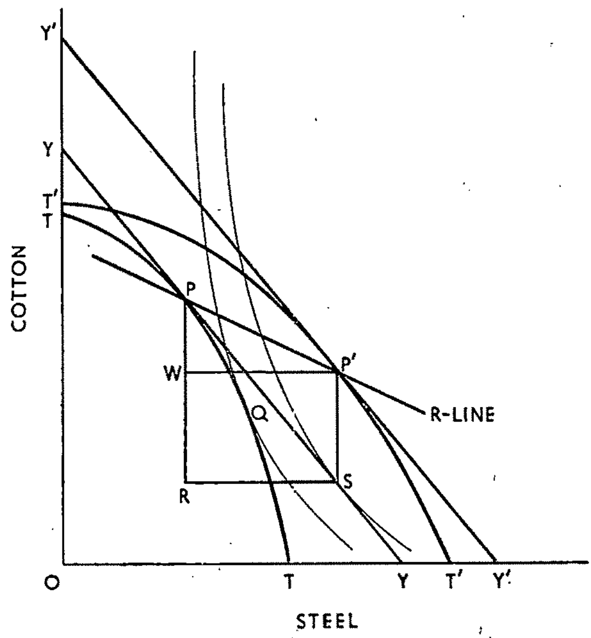

FIGURE 1

sufficiency) point. Factors will move out of the cotton into the steel industry; but since cotton is labor-intensive and steel is capital-intensive, at constant factor prices the production shift creates an excess supply of labor and an excess demand for capital. Consequently the marginal product of labor must fall and the marginal product of capital must rise. This is the familiar Stolper-Samuelson tariff argument.[6]

But since capital is mobile, its higher marginal product in A induces a capital movement into A from B, changing factor endowments so as to make A more capital-abundant. With more capital A's transformation curve expands until a new equilibrium is reached.

Some help in determining where this new equilibrium will be is provided by the box diagram in Figure 2. Country A initially has *OC* of capital and *OL* of labor; *OO'* is the efficiency locus along which marginal products of labor and capital are equalized in steel and cotton. Equilibrium is initially at *P* which corresponds to *P* on the production block in Figure 1. Factor proportions in steel and cotton are given by the slopes of *OP* and *O'P* respectively.

After the tariff is imposed production moves along the efficiency locus to *Q*, corresponding to the autarky point *Q* in Figure 1. The

[6] *Cf.* W. F. Stolper and P. A. Samuelson, "Protection and Real Wages," *Rev. Econ. Stud.*, Nov. 1941, IX, 58-73.

slopes of OQ and $O'Q$ indicate that the ratios of labor to capital in both cotton and steel have risen—*i.e.*, the marginal product of capital has risen and the marginal product of labor has fallen. Capital flows in and the cotton origin O' shifts to the right.

With perfect mobility of capital the marginal products of both labor and capital must be equalized in A and B. This follows from the assumption that the production functions are linear, homogeneous and identical in both countries. Since marginal products in the rest of the world can be considered constant, the returns to factors in A will not change. Factor proportions in both steel and cotton in A then must be the same as before the tariff was imposed—so equilibrium must lie

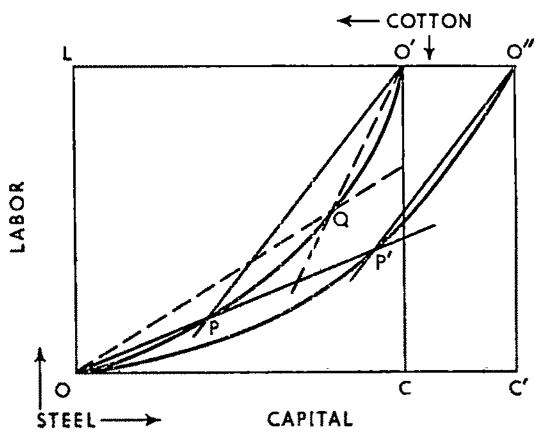

FIGURE 2

along OP-extended at the point where it is cut by a line $O''P'$ parallel to $O'P$, where O'' is the new cotton origin. But this is not yet sufficient to tell us exactly where along OP-extended the point P' will be.

Since marginal products in the new equilibrium are the same as before the tariff, commodity prices in A will not have changed; but if both incomes earned by domestic factors and commodity prices are unchanged, consumption will remain at S (in Figure 1). Production however must be greater than S because interest payments must be made to country B equal in value to the marginal product of the capital inflow. In Figure 1, then, production equilibrium must be at some point above or to the northeast of S.

To find the exact point we must show the effects of a change in capital endowments on the production block. Because steel is capital-intensive we should expect the production block after the capital movement has taken place to be biased in favor of steel at any given price

ratio; that this is so has been recently proved by Rybczynski.[7]

Since the same price ratio as at P will prevail, the locus of all tangents to larger and larger production blocks based on larger and larger endowments of capital must have a negative slope. Such a line, which I shall call the R-line, is drawn in Figure 1.

Capital will flow in until its marginal product is equalized in A and B, which will be at the point where A can produce enough steel and cotton for consumption equilibrium at S without trade, and at the same time make the required interest payment abroad. This point is clearly reached at P' directly above S. At any point along the R-line to the northwest of P', country A would have to import steel in order to consume at S—*i.e.*, demand conditions in A cannot be satisfied to the northwest of P'. At P' demand conditions in A are satisfied and the interest payment can be made abroad at the same price ratio as before the tariff was levied. Thus the capital movement need not continue past this point, although any point to the southeast of P' would be consistent with equilibrium.

Production takes place in A at P', consumption is at S and the transfer of interest payments is the excess of production over consumption in A, SP' of cotton.[8] The value of A's production has increased from OY to OY' in terms of steel, but YY' (which equals in value SP' of cotton) must be transferred abroad, so income is unchanged.

We initially assumed a prohibitive tariff; in fact even the smallest tariff is prohibitive in this model. A small tariff would not prohibit trade immediately: because of the price change some capital would move in and some trade would take place. But as long as trade continues there must be a difference in prices in A and B equal to the ad valorem rate of tariff—hence a difference in marginal products—so capital imports must continue. Marginal products and prices can only be equalized in A and B when A's imports cease.

The tariff is now no longer necessary! Since marginal products and prices are again equalized the tariff can be removed without reversing the capital movement. The tariff has eliminated trade, but after the capital movement there is no longer any need for trade.

[7] T. M. Rybczynski, "Factor Endowment and Relative Commodity Prices," *Economica*, Nov. 1955, XXII, 336-41. The proof can be easily demonstrated in Figure 2. At unchanged prices equilibrium must lie along OP-extended. With the larger endowment of capital, $O''P'$ must be shorter than OP. Since these lines have the same slope and constant returns to scale apply, output of cotton at P' must be less than at P. A paper by R. Jones written at the Massachusetts Institute of Technology in the spring of 1955 contained a similar proof.

[8] SP' must equal in value the marginal product of the capital inflow at constant prices. In Figure 1, PP' is the change in output associated with the increase in capital; steel output increases by RS but cotton output decreases by PW. The marginal product of the capital inflow is the value of RS minus the value of PW which, in terms of cotton, is $P'S$.

This is not really such a surprising result when we refer back to the assumptions. Before the tariff was imposed we assumed both unimpeded trade and perfect capital mobility. We have then two assumptions each of which is sufficient for the equalization of commodity and factor prices. The effect of the tariff is simply to eliminate one of these assumptions—unimpeded trade; the other is still operative.

However, one qualification must be made. If impediments to trade exist in both countries (tariffs in both countries or transport costs on both goods) and it is assumed that capital-owners do not move with their capital, the interest payments on foreign-owned capital will be subject to these impediments; this will prevent complete equalization of factor and commodity prices. (This question could have been avoided had we allowed the capitalist to consume his returns in the country where his capital was invested.) The proposition that capital mobility is a perfect substitute for trade still stands, however, if one is willing to accept the qualification as an imperfection to capital mobility.

II. *Effect of Relative Sizes of the Two Countries*

The previous section assumed that country A was very small in relation to country B. It turns out however, that the relative sizes of the two countries make no difference in the model, provided that complete specialization does not result.

Suppose as before that country A is exporting cotton in exchange for steel. There are no impediments to trade and capital is mobile. But we no longer assume that A is small relative to B. Now A imposes a tariff on steel raising the internal price of steel in relation to cotton, shifting resources out of cotton into steel, raising the marginal product of capital and lowering the marginal product of labor. A's demand for imports and her supply of exports fall. This decline in demand for B's steel exports and supply of B's cotton imports raises the price of cotton relative to steel in B; labor and capital in B shift out of steel into cotton raising the marginal product of labor and lowering the marginal product of capital in B. Relative factor returns in A and B move in opposite directions, so the price changes in A which stimulate a capital movement are reinforced by the price changes in B. The marginal product of capital rises in A and falls in B; capital moves from B to A, contracting B's and expanding A's production block.

The assumption that capital is perfectly mobile means that factor and commodity prices must be equalized after the tariff. It is necessary now to show that they also will be unchanged. The price of cotton relative to steel is determined by world demand and supply curves. To

prove that prices remain unchanged it is sufficient to show that these demand and supply curves are unchanged—or, that at the pretariff price ratio demand equals supply after the capital movement has taken place. But we know that at the old price ratio marginal products, hence incomes, are unchanged—thus demand is unchanged. All that remains then is to show that at constant prices production changes in one country cancel out production changes in the other country.

This proposition can be proved in the following way: If commodity and factor prices are to be unchanged after the capital movement has taken place then factor proportions in each industry must be the same as before; then the increment to the capital stock used in A will, at constant prices, increase the output of steel and decrease the output of cotton in A, and the decrement to the capital stock in B will decrease the output of steel and increase the output of cotton in B. But the increase in A's capital is equal to the decrease in B's capital, and since production expands at constant prices and with the same factor proportions in each country, the increase in resources used in producing steel in A must be exactly equal to the decrease in resources devoted to the production of steel in B. Similarly, the decrease in resources used in producing cotton in A is the same as the increase in resources devoted to cotton production in B. Then, since production functions are linear and homogeneous, the equal changes in resources applied to each industry (in opposite directions) imply equal changes in output. Therefore, the increase in steel output in A is equal to the decrease in steel output in B, and the decrease in cotton output in A is equal to the increase in cotton output in B—*i.e.*, world production is not changed, at constant prices, by a movement of capital from one country to another. In the world we are considering it makes no difference in which country a commodity is produced if commodity prices are equalized.

This proposition can perhaps be made clearer by a geometrical proof. In Figure 3a, T_aT_a is A's transformation curve before the tariff, and $T_a'T_a'$ is the transformation curve after the tariff has been imposed and the capital movement has taken place. At constant prices equilibrium moves along A's R-line from P_a to P_a' increasing the output of steel by RP_a' and decreasing the output of cotton by RP_a. Similarly, in Figure 3b, T_bT_b is country B's transformation curve before the capital movement and $T_b'T_b'$ is the transformation curve after capital has left B. At constant prices production in B moves along B's R-line to P_b', steel production decreasing by SP_b and cotton production increasing by SP_b'.

To demonstrate the proposition that world supply curves are unchanged it is necessary to prove that RP_a' equals SP_b and that RP_a

equals SP_b'. The proof is given in Figure 4. OL_a and OC_a are, respectively, A's initial endowments of labor and capital; OL_b and OC_b are the endowments of B. OO_a and OO_b are the efficiency loci of A and B with production taking place along these loci at P_a and P_b, corresponding to the same letters in Figures 3a and 3b.

Now when A imposes a tariff on steel suppose that C_bC_b' of capital leaves B, shifting B's cotton origin from O_b to O_b'. At constant prices labor-capital ratios in each industry must be the same as before so equilibrium must move to P_b', corresponding to P_b' in Figure 3b. Since

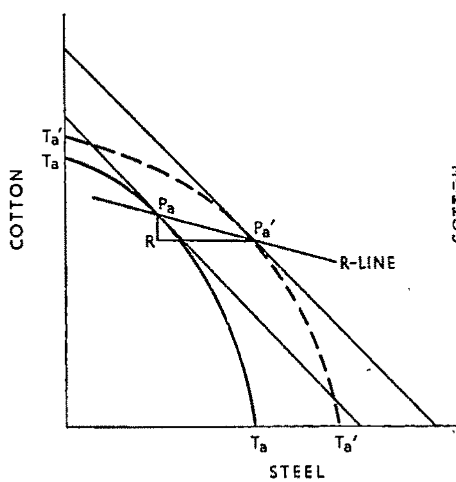

FIGURE 3a. Country A

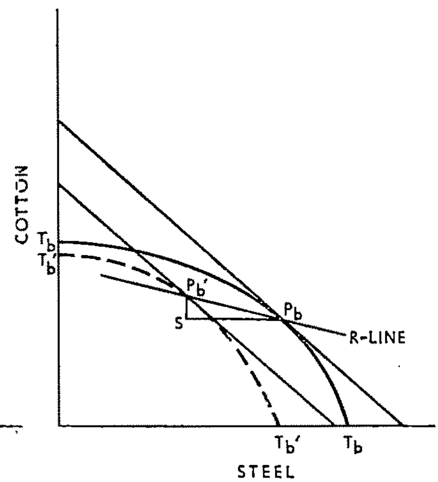

FIGURE 3b. Country B

the capital outflow from B must equal the capital inflow to A, A's cotton origin must move to the right by just the same amount as B's cotton origin moves to the left—*i.e.*, from O_a to O_a'; and A's production equilibrium at constant prices must move from P_a to P_a'. The proof that world supply is unchanged at constant prices is now obvious since JP_aP_a' and $KP_b'P_b$ are identical triangles. P_aP_a', representing the increase in steel output in A, equals P_bP_b', the decrease in steel output in B, and the decrease in cotton output in A, JP_a, equals the increase in cotton output in B, KP_b'.[9]

This relationship holds at all combinations of commodity and factor prices provided some of each good is produced in both countries. It means that world supply functions are independent of the distribution of factor endowments. More simply it means that it makes no difference

[9] The *R*-lines in Figures 3a and 3b must be parallel when output expands at the same price ratio in each country, and they must be straight since production changes are compensating.

to world supply where goods are produced if commodity and factor prices are equalized. Since world supply and demand functions are not changed by the capital movements, so that the new equilibrium must be established at the same prices as before, our earlier assumption that A is very small in relation to B is an unnecessary one.[10]

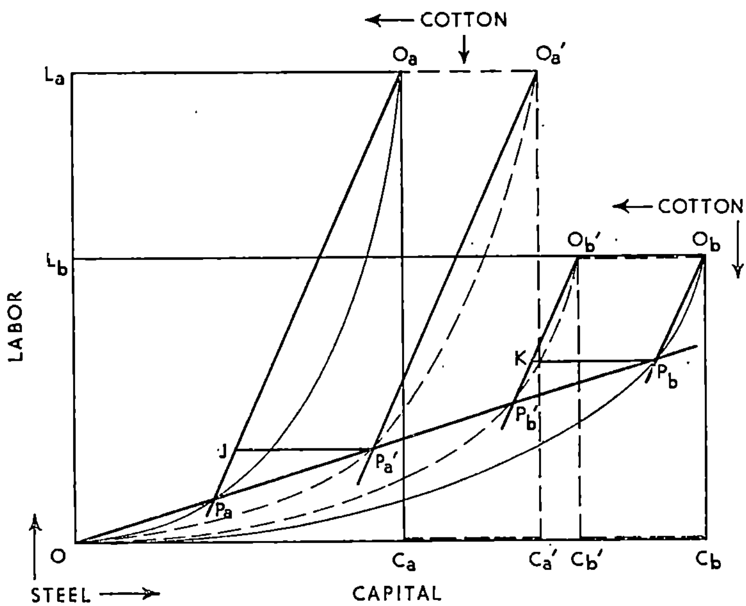

FIGURE 4

The general conclusion of Sections I and II is that tariffs will stimulate factor movements. Which factor moves depends, of course, on which factor is more mobile. The assumption used here, that capital is perfectly mobile and that labor is completely immobile is an extreme

[10] One qualification to the argument must be noted which is not necessary when the other country is very large. A condition for the marginal product of capital in A to rise as a result of the tariff is that the price of steel rise relative to the price of cotton. It is possible, if the foreign offer curve is very inelastic, that the improvement in A's terms of trade in raising the relative price of exports (cotton) will more than offset the effect of the tariff in raising the relative price of imports (steel). The condition that the "normal" case is satisfied requires that the sum of the foreign elasticity of demand and the domestic marginal propensity to import be greater than unity (the marginal propensity to import is relevant because the improvement in the terms of trade increases income). This is Metzler's qualification to the Stolper-Samuelson tariff argument. See Lloyd Metzler "Tariffs, the Terms of Trade and the Distribution of the National Income," *Jour. Pol. Econ.*, Feb. 1949, LVII, 1-29. If this criterion is less than unity a tariff imposed by a labor-abundant country would stimulate foreign investment rather than attract capital—a result, it should be noted, based on the static assumptions of this model; if dynamic elements were involved the direction of the capital movement would depend on whether the effects of the tariff on production preceded or followed the effects on the terms of trade.

one which would have to be relaxed before the argument could be made useful. But a great deal can be learned qualitatively from extreme cases and the rest of the paper will retain this assumption. When only capital is mobile, a labor-abundant country can attract capital by tariffs and a capital-abundant country can encourage foreign investment by tariffs. The same is true for an export tax, since in this model the effect of an export tax is the same as that of a tariff.

The analysis is not restricted to tariffs; it applies as well to changes in transport costs. An increase of transport costs (of commodities) will raise the real return of and thus attract the scarce factor, and lower the real return and thus encourage the export of the abundant factor. The effect of any trade impediment is to increase the scarcity of the scarce factor and hence make more profitable an international redistribution of factors. Later we shall consider, under somewhat more realistic assumptions than those used above, the applicability of this proposition as an argument for protection.

III. *Increased Impediments to Factor Movements Stimulate Trade*

To show that an increase in impediments to factor movements stimulates trade we shall assume that some capital is foreign-owned and illustrate the effects on trade of taxing this capital. Strictly speaking this is not an impediment to a capital *movement;* but if it were assumed that a steady capital flow was taking place the tax on foreign-owned capital would operate as an impediment.

We shall use Figures 1 and 2. Begin with equilibrium initially at P' in Figure 1. No impediments to trade exist but since factor and commodity prices are already equalized no trade takes place. We assume that $O'O''$ of capital in Figure 2 is foreign-owned so a transfer equal in value to YY' in Figure 1 is made. Consumption equilibrium in A is at S.

If a tax is now levied on all foreign capital its net return will be decreased, and since factor prices must be equalized in A and B, all of it ($O'O''$) must leave A. As capital leaves A, her production block contracts. At constant prices more cotton and less steel is produced. The price of steel relative to cotton tends to rise but, since there are no impediments to trade, is prevented from doing so by steel imports and cotton exports.

Since all foreign capital leaves A the final size of A's transformation function is TT, that consistent with domestically owned capital. Production equilibrium moves from P' to P, but consumption equilibrium remains at S because interest payments are no longer made abroad. PR is now exported in exchange for steel imports of RS. The effect of the tax has been to repatriate foreign capital and increase trade. By

similar reasoning it could be shown that a subsidy will attract capital and decrease trade, although in the latter case the capital movement will only stop when factor prices change—*i.e.*, specialization takes place.

In order to achieve efficiency in world production it is unnecessary that both commodities and factors move freely. As long as the production conditions are satisfied is is sufficient that *either* commodities *or* factors move freely. But if some restrictions, however small, exist to both commodity and factor movements, factor- and commodity-price equalization cannot take place (except in the trivial case where trade is unnecessary because prices are already equal). This principle applies only to those restrictions which are operative—obviously it does not apply to import tariffs on goods which are exported, transport costs for factors which are immobile anyway or quotas larger than those required for equalization to take place.

If it were not for the problem of transporting interest payments, referred to earlier, one mobile factor would be sufficient to ensure price equalization. When the labor-abundant country imposes the tariff, equalization will take place as long as the other country continues a free-trade policy and there are no transport costs involved. But if the capital-abundant country imposes a tariff, inducing the export of capital, prices cannot be equalized even if the labor-abundant country maintains free trade unless the transfer of goods constituting interest payments is also tariff-free.[11]

IV. *An Argument for Protection*

The proposition that an increase in trade impediments stimulates factor movements and an increase in impediments to factor movements stimulates trade has implications as an argument for protection. In order to examine these implications we shall relax some of the assumptions previously made—first, by introducing trade impediments, then decreasing the degree of factor mobility, and finally relaxing the assumption that constant returns to scale apply by taking account of external economies. We shall begin with a model similar with that of Section II except that we shall assume country A to be considerably smaller than country B.[12]

[11] If trade were a perfect substitute for factor movements in the absence of trade impediments, a rough idea of the cost of trade impediments could be acquired by calculating the increase in world income which could take place if capital were redistributed from capital-rich to capital-poor countries until its marginal product throughout the world was equalized. Alternatively this could be considered the most of capital immobility. This statement would have to be qualified in the many-factor case.

[12] I make this assumption so that the change in the terms of trade resulting from A's tariff is small. In passing, however, it should be noted that the more mobile is capital, the

Take as a starting point the absence of trade impediments; trade is sufficient to ensure commodity- and factor-price equalization. Now suppose that, overnight, transport costs come into existence; this raises the price of importables relative to exportables, shifts resources into importables, raises the marginal product of the scarce factor and lowers that of the abundant factor in each country. Incomes of A-capitalists and B-workers increase while incomes of A-workers and B-capitalists decrease. These changes in factor returns create the incentive for a capital movement from B to A, a labor movement from A to B, or a combination of both movements. Where the final equilibrium will be depends on the degree of factor mobility. I shall assume that labor is immobile between countries but that capital is at least partially mobile.

If we assume that capital is perfectly mobile, but that capitalists do not move with their capital, the latter will move from B to A until the return from capital invested in A is the same as from that invested in B; but this implies that marginal physical products cannot be equalized since transport costs must be paid on the goods constituting interest payments.[13] The introduction of transport costs would, then, reduce world income even if capital were perfectly mobile unless capitalists are willing to consume their income in the country in which their capital is invested.

But we shall not assume that capital is perfectly mobile. Instead suppose that B-capitalists insist on receiving a higher return on any capital they invest in A than on that which they invest in B, perhaps because of political instability, patriotism, risk or economic uncertainty. Let us assume that B-capitalists require a 10 per cent higher return on capital invested in A than on that invested in B, but that if this interest differential rises above 10 per cent, capital is perfectly

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smaller is the change in the terms of trade resulting from a tariff; this means that the optimum tariff will be smaller with, than without, capital mobility; and in the limiting case where capital is perfectly mobile, discussed in Sections I and II, the optimum tariff is zero.

Also, in what follows I neglect to discuss the tariff proceeds which are implicitly assumed to be redistributed in such a way as to leave A's indifference map unchanged. Alternatively, to abstract both from changes in the terms of trade and the tariff proceeds, it could be assumed that the tariff is prohibitive.

[13] However, interest rates must be the same! Since capital goods—call them machines—can move costlessly from one country to the other, the price of machines in money terms will be the same in both countries; and since machines will move to A until marginal products in money terms are equal, interest rates (the return to a machine as a proportion of the price of a machine) must be the same in both countries. The interest rate, of course, is not commensurable with the marginal product of capital unless the latter is defined as a proportion of the price of machines; in the new equilibrium the two are equal when the marginal product of capital is so defined.

mobile. Suppose further that the return to capital in both countries before introducing transport costs was 12 per cent; and that the effect of introducing transport costs is to lower the marginal product of capital in B to 11 per cent and to raise it in A to 17 per cent. Since the interest differential is less than 10 per cent no capital movement will take place.

It is at this point that we shall consider the argument for a tariff in A. Let A impose a tariff, further increasing her relative scarcity of capital and B's relative scarcity of labor. Rates of return on capital change to, let us say, 25 per cent in A and 9 per cent in B, creating an interest differential of 16 per cent. Capital will now move from B to A until this differential is reduced to 10 per cent. Obviously the rates of return cannot return to the pretariff rates of 17 per cent for A and 11 per cent for B: first, because part of the tariff will be "used up" in bringing the marginal products of capital in A and B to the point where B has an incentive to export capital; and second, because transport costs must be paid on the interest returns.

If capital moves until the return in A falls to 20 per cent and in B rises to 10 per cent, what can be said about the economic effects of the tariff as far as country A is concerned?

First, A-capitalists are better off; the tariff increases and the capital inflow decreases capital scarcity, but the net effect is a higher return than before the tariff. Second, A-workers are worse off in spite of the fact that the total ratio of capital to labor in A has increased. Marginal products are determined not by the total ratio of capital to labor in a country, but by the ratio of capital to labor in each industry. The capital from B is largely absorbed by increasing the output of capital-intensive importables in A; it can never succeed in raising the capital-labor ratio in each industry to its pretariff level. Real wages must be lower than before the tariff.

Third, real national income in A is less than before the tariff; the tariff makes A's scarce factor relatively more scarce, and her abundant factor relatively more abundant, reducing her potential gains from international trade. Even under the most favorable assumptions, with capital perfectly mobile and capitalists moving with their capital, A's income would remain the same; it could not improve.

So far no valid tariff argument has been produced.[14] Capital can be

[14] It is true that B's national income has increased since the effect of A's tariff is to raise B-wages and stimulate capital investment in A, where B-capitalists receive a higher rate of return than at home; but it cannot be said that B-capitalists are better off since, *ex hypothesi*, they are indifferent between investment at home and an investment in A in which the rate of return is 10 per cent higher. In any case the purpose of policy makers in A is to raise A's not B's income.

attracted to a capital-scarce country by a tariff, but the capital movement can only alleviate some of the unfavorable effects of the tariff; it can not eliminate them.

The argument can be rescued if we assume the appropriate nonlinearities of scale.[15] If external economies of scale[16] exist in the production of A-importables, the tariff will encourage more capital to enter than would otherwise be attracted since the marginal product of capital entering A will not fall as rapidly as it would fall in the absence of economies of scale. The new equilibrium will be established with a higher marginal product of labor, factor returns now being dependent not only on the proportions in which factors are combined, but also on the total output of importables. Real wages will be higher in A with than without economies of scale, though it is not certain that they will be higher than before the tariff; to demonstrate the latter it would have to be established that the economies of scale are sufficient to make up for the transport costs which must be paid on the interest returns. If they are sufficient, the tariff would be unequivocally beneficial.[17]

It is easy to see that economies of scale in importables or diseconomies of scale in exportables increase the likelihood that the net effect of the tariff in a labor-abundant country is favorable, and vice versa. To justify an argument for protection on the above grounds it would have to be established that capital-intensive industries are subject to external economies of scale and/or that labor-intensive industries are

[15] It may be possible to rescue the argument in other ways by assuming irrational, though possibly not implausible, behavior. For example, after B-capitalists have begun investing in A, they may acquire more confidence, and be willing to accept a smaller interest differential. In this case after the capital movement the marginal product of labor may be higher, and the marginal product of capital lower, than before the tariff, thereby increasing A's national income. Or, while some (relatively) capital-scarce countries may fear "exploitation" from foreign investment, others may view the increase in productive capacity resulting from it as desirable in itself (perhaps with the intent of future expropriation!)—in which case this factor would have to be balanced against the reduction in national income.

[16] It is sometimes overlooked that internal economies of scale do not constitute an argument for a tariff. An industry must not only be able to compete some years after the tariff; it must also earn a sufficient return to repay the economy for the loss of income resulting from the tariff in the period of the industry's infancy. The investment will then only be worthwhile if future output is sufficient to earn for the firm the current rate of interest on the capital involved. But when economies to scale are internal the investment will be profitable for private enterprise. Only when divergences between private and social costs due to *external* economies of scale are present is the case for government intervention valid.

[17] But if the same nonlinearities of scale exist in B the argument is weakened; economies of scale in A-importables will cause the marginal product of capital to fall at a slower rate than in their absence, but in this case the marginal product of capital in B will rise at a much faster rate as capital is exported. Similar economies of scale in B, then, may cancel out the effect of economies in A in inducing a larger capital movement, although this effect could be neglected if B were the rest of the world and A a small country.

subject to external economies of scale; and these nonlinearities are of the required size.[18]

V. *Concluding Remarks*

Like all theory, the above analysis is remote from reality. The problems of many factors, goods and countries, monopolistic competition and differences in production functions have not been considered. In addition the model is nonmonetary and static. Still, these limitations do not interfere with the central theme, although any policy considerations would have to take them into account.

A number of questions present themselves. Did the growth of protection in the late nineteenth century in North America stimulate the large labor and capital inflows of that period (assuming land to have been the abundant factor)? Did the increased protection in Britain in this century stimulate capital export? Did the breakdown in international factor movements in the interwar period stimulate trade? And to what extent have the high tariff barriers between Canada and the United States contributed to the stimulus of American investment in Canada? It would be interesting to see what help this model offers in finding answers to these questions.

[18] A possible extension of the model to allow for many goods could be made as follows: All goods could be ordered in terms of their capital intensities—*i.e.,* the ratios of capital to labor at any given price ratio. B would export those goods that are most capital-intensive and A those goods which are most labor-intensive. In the absence of trade impediments one of the intermediate commodities would be produced in common, establishing the ratio of factor returns in much the same way as goods produced in common establish the ratio of international values in a Graham model. Now the effect of a tariff in A (as of any impediment) is to increase the relative price of capital-intensive goods in A and to lower them in B thus raising in A and lowering in B the marginal product of capital. Now not one commodity but a whole series of commodities would be produced in common, A's exports comprising only the most labor-intensive and B's exports only the most capital-intensive goods. In A new capital-intensive industries, and in B new labor-intensive industries, would be created. If some capital were not allowed to move to A, the margin of comparative advantage would be extended to capital-intensive industries in A, thus increasing the number of goods produced in common in both countries.

SOME LITTLE-UNDERSTOOD ASPECTS OF KOREA'S MONETARY AND FISCAL SYSTEMS

By COLIN D. CAMPBELL AND GORDON TULLOCK*

In recent years many Americans have learned that the task of giving advice to foreign countries is not easy. The principal difficulty is that foreign countries have economic and political systems that are different from our own. Not knowing the real situation in foreign countries, Americans sometimes assume incorrectly the existence of their own institutions. We propose to illustrate the difficulty with a few examples based on American experience with the problem of inflation in South Korea from 1945 to 1954. Although many of these examples are unique, they may suggest similar situations in other countries and add to our general understanding of the problem of giving economic advice to other countries.

I. *Adjustments to Continuous Inflation*

From the beginning of the American occupation in 1945 to the present, the Korean people appear to have anticipated a very rapid rate of inflation. Although it is well known by Western economists that general anticipation of inflation will profoundly change the way in which a country's money system operates, few American economists have had any acquaintance with a monetary system in which rapid inflation was anticipated. The strangeness of such a system has been the principal difficulty confronting American advisors in South Korea.

It is not known exactly when during the second world war the Korean populace first began to anticipate some inflation. Immediately before and after the surrender of Japan in August 1945 the Japanese system of price controls collapsed and prices rose from 20 to 25 times.[1] Following this change from suppressed to open inflation, most prices either remained stable or rose a little in the final quarter of 1945.[2]

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[1] A. I. Bloomfield and J. P. Jensen, *Banking Reform in South Korea* (Federal Reserve Bank of New York, March 1951), p. 27.

[2] National Economic Board, H.Q., U. S. Army Military Government in Korea, *Price Developments in South Korea* (Seoul, Sept. 1947), p. 2.

Prices of major grain commodities actually fell, probably because the Koreans suddenly stopped exporting 40 per cent of their annual rice crop.[3] In the first 9 months of 1946, however, the people apparently came to expect a much more rapid rate of inflation than previously. At this time there was a remarkable increase in the rate of velocity of money. Wholesale prices increased 666 per cent while the money supply rose only 58 per cent. A reaction then set in and the velocity declined so that the index of wholesale prices actually fell during the last 3 months of the year in spite of a continued increase in the money supply. Since 1946 changes in the rate of velocity have been small compared to the changes in that year.

One result of the general expectation of rapid inflation was that the Korean people discarded the use of Korean money as a store of value. This was noted by Bloomfield and Jensen who were advisors to the Korean Ministry of Finance in 1950.[4] Most Koreans shifted from the use of Korean money as a store of value to the use of hoarded goods or dollar notes. This hoarding has been viewed with alarm by many Americans. They have thought that the purpose of the hoarding was to speculate.[5] Actually, when inflation is anticipated, there are few alternatives to hoarding. Both persons and business firms must have some relatively liquid assets, and when prices are expected to rise, a depreciating money will no longer serve this purpose.

Bloomfield and Jensen also noted the unusually high rates of interest in the free market. Interest rates in the open market have ranged from 5 to 20 per cent per month. As Bloomfield and Jensen explained, this also was primarily the result of anticipated inflation. In determining rates of interest, borrowers and lenders were discounting the anticipated rise in prices. Again, some Americans have not understood the reason for these high interest rates.[6] They have blamed the money lenders and have thought that the high interest rates were impediments to needed investment.

Although Korean money was discarded as a store of value, it has been used during this entire period as a medium of exchange. The widely accepted belief that rapid inflation must eventually result in complete monetary collapse received careful formulation in the works

[3] G. M. McCune, *Korea Today* (Cambridge, 1950), p. 119.

[4] Bloomfield and Jensen, *op. cit.*, pp. 31-32.

[5] For example, see United Nations, *An Economic Programme for Korean Reconstruction*, prepared by R. R. Nathan Associates for the U.N. Korean Reconstruction Agency (Washington, March 1954), p. 10.

[6] For example, see the informative news article by W. L. Worden, "We Can't Ignore Korea," *Sat. Eve. Post*, Oct. 15, 1955, CCXXVIII, 182. See also J. P. Lewis, *Reconstruction and Development in South Korea* (Washington, 1955), p. 27.

of such a distinguished economist as Cannan and is still held by many economists.[7] In 1950 Bloomfield and Jensen wrote: "The basic economic problem that overshadows all others in South Korea today is to stop further inflation before it develops into a full-scale flight from the currency with inevitable monetary and financial collapse."[8]

Yet, after Bloomfield and Jensen made this prediction, even though inflation became much more rapid during the Korean war from 1950 to 1953 and has continued up to the present, Koreans still have used their money as a means of payment. Western economists have probably underestimated the usefulness of money as a medium of exchange in an inflationary economy. In spite of the greater theoretical interest in the speculative and precautionary motives for holding money, the principal function of money is to make transactions. In a period of inflation people will, of course, try to hold money for transactions for shorter periods of time. This has been true in South Korea. But, they may still find the depreciating money more desirable than barter as a means of exchange. There has been a remarkably small increase in barter trade in South Korea during this period. Effective price controls during suppressed inflation could undoubtedly make barter more attractive than the use of money, as was the case in Germany after the second world war. But, in South Korea there have been no effective general controls over prices since the Japanese controls broke down in 1945. The Korean government has fixed the prices of aid goods, grains collected by the government, and numerous items produced by government enterprises, but the government itself sells these items for cash so there has been no chance for a shift to bartering for these items. Finally, government enforcement of the use of its money as a medium of exchange is an important factor keeping it in circulation.

The Republic of Korea unsuccessfully attempted to stabilize prices by means of a monetary reform in February 1953. Because of the rapidity of the rise in prices, the advisability of a reform had been under consideration for several years. The old won currency was converted into a new currency called the "hwan" at a ratio of 100 won to 1 hwan. People were required to surrender won notes and payment orders and to declare and register won bank deposits and other monetary obligations within nine days after the announcement. The initial exchange that was permitted was limited to 500 hwan per person, and a portion of the surrendered money was blocked for a period up to three years. Good reasons for thinking that the conversion would help

[7] E. Cannan, "The Application of the Theoretical Apparatus of Supply and Demand to Units of Currency," *Econ. Jour.*, Dec. 1921, XXXI, 460-61; reprinted in American Economic Association, *Readings in Monetary Theory* (New York, 1951), p. 12.

[8] Bloomfield and Jensen, *op. cit.*, p. 57.

the inflationary situation are hard to find. Monetary conversions are usually recommended to prevent a sharp rise in prices when rationing and price controls are withdrawn, but in 1953 there was no need for reducing the monetary supply for this purpose. Between 1945 and 1954 only a few articles were rationed—mostly commodities sold by the government in the cities. The reform could have been part of an over-all program to return to conditions of monetary stability, but there was no reason to believe that the government would be able to balance its budget and avoid an expansion of bank loans. The reform, however, did afford the police an opportunity to check on some cases of tax evasion. Also, although there was some redistribution of wealth held in the form of currency and deposits because large holdings were blocked, at this time most wealthy persons undoubtedly held the bulk of their assets in hoarded commodities or dollar notes.

A common error among those who are unfamiliar with rapid inflation is the belief that inflation necessarily results in an excessive bulkiness of the money supply. When the currency conversion in 1953 was announced, the *New York Times* reported that the Korean government believed that the new issue of currency would cut printing costs and eliminate "mountains of paper" in any major money transaction.[9] Actually, although the quantity of money increased almost 130 times from 1945 to 1952, the number of paper notes in circulation only tripled.[10] In most countries, because the government is willing to exchange notes of different denominations at par with each other, the denominations outstanding—and thus the number of paper notes in circulation—depend primarily on what the public wants. This was apparently the situation in South Korea. To avoid problems of bulkiness, however, a government must occasionally issue larger denomination notes as inflation progresses. This was done in South Korea in 1950 when the new 1,000 won note replaced the 100 won note as the largest note in circulation. Although the monetary reform initially reduced the number of paper notes outstanding by approximately 10 to 1, their number was almost restored in the two years after the reform.

Koreans have also continued to use their money as a unit of account even though inflation has caused the money unit of account to have little meaning. They kept their bookkeeping accounts in terms of won prior to the monetary reform and then in terms of hwan. This continued use of their money as a unit of account would be surprising except for their primitive accounting practices. During the Chinese inflation from 1937 to 1949, even though the Chinese used their cur-

[9] "South Korea Acts to Bolster Forces," *N. Y. Times*, Feb. 15, 1953, p. 3.

[10] The number of paper notes in circulation can be computed from data on note issue by denomination in the *Mon. Stat. Rev.* published by the Bank of Korea.

TABLE I.—THE SUPPLY OF MONEY AND WHOLESALE PRICES IN SOUTH KOREA, 1945–1954*

End of Year	Money Supply[a]		Index of Wholesale Prices in Seoul[b]	
	Amount[c]	Percentage Increase[d]	Annual Average in 1947=100	Percentage Increase[e]
1945	11,828	—	11.8	—
1946	27,194	129.9	74.4	530.5
1947	53,647	97.3	142.4	91.4
1948	73,671	37.3	185.0	29.9
1949	130,617	77.3	289.9	56.7
1950	290,462	122.4	831.1	186.7
1951	784,806	170.2	2,599.2	212.7
1952	1,564,117	99.3	5,256.8	102.2
1953	3,489,600	123.1	6,466.1	24.9
1954	6,687,100	91.6	10,036.7	55.2

[a] Includes Bank of Korea notes held outside banking institutions, all private and commercial checking or other deposits in all banks, financial associations, and the Bank of Korea, and a small amount of treasury deposits from 1947 to 1953. These figures were revised in the *Mon. Stat. Rev.*, July 1955. The old figures are used here because new data for the factors affecting the money supply in Table II are not available and because the old and new figures differ very little in the percentage increase from the end of one year to the end of the next.

[b] In Pusan from 1950 to 1952.

[c] Prior to 1953 in millions of won. In 1953 and 1954 in 10,000 hwan. In February 1953 won currency was converted into hwan at 100 to 1 hwan.

[d] Percentage increase from end of previous year.

* *Sources:* A. I. Bloomfield and J. P. Jensen, *Banking Reform in South Korea op. cit.* p. 29; Bank of Korea, *Mon. Stat. Rev.*, various issues, 1952–55.

rency as a medium of exchange, they quickly resorted to several alternative units of account such as U. S. dollars, various commodity indexes, and 1937 prices.[11]

An unusual characteristic of the Korean inflation is that from 1947 to 1949 and from 1953 to 1954 the velocity of circulation apparently declined. As shown in Table I, in these years the percentage increase in the wholesale price index from the end of one year to the end of the next lagged behind the large expansion in the money supply.[12] It is widely

[11] See the authors' "Hyperinflation in China, 1937-49," *Jour. Pol. Econ.*, June 1954, LXII, 242-43.

[12] The lag in the rise in prices behind the increase in the money supply in 1953 is probably smaller than the wholesale price index in Table I shows. The small increase in wholesale prices in that year resulted from the drop in the index for grain which has a weight of 39 and is the largest component of the wholesale price index. In 1953 the wholesale index excluding grain rose 81 per cent. The variation in the components of the index resulted in a downward bias because there was no change in the weight given to grain even though the percentage of income spent for grain must have dropped sharply.

Another reason that the rise in prices following the Korean war was smaller than might be expected was the rapid economic recovery at this time. In 1953-54 the rice crop was larger than in the two previous years. Electric power generation and industrial and mining

accepted by Western economists that rapid inflations normally accelerate prior to their collapse, and in many cases this has been true.[13] Bloomfield and Jensen state that the decline in velocity in South Korea from 1947 to 1949 can be "accounted for only in terms of a failure on the part of the bulk of the population fully to grasp what was happening to the purchasing power of their money, or of a belief that the rise in prices would soon come to an end."[14] This explanation, however, seems incorrect since the continuance of high interest rates and the use of commodities as a store of value show that the populace did anticipate inflation. These declines in the velocity of circulation may have resulted from the slowing up of the rate of increase in the money supply from 1946 to 1948 and from 1951 to 1954. Slowing up the rate of new issues would tend to reduce the rate of inflation and, by reducing the amount of depreciation over a given period, the cost of holding money. As people became accustomed to the new rate, this might have caused them to economize less in the use of money. Just the opposite situation may have occurred during the Korean war when the rate of expansion in the money supply was increasing, and prices rose more rapidly than the quantity of money. The receipt of larger and larger amounts of aid goods both before and after the Korean war probably contributed to the decline in the annual percentage increase in the money supply in these periods. United States government grants and credits to Korea, not including military grants, rose from $32 million up to the end of 1946 to $134 million in 1948. They also rose from $118 million in 1951 to $192 million in 1953.[15] Although the annual amounts of these grants seem small to Americans, from the point of view of the Korean national income, they are important.

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production also increased significantly. After the armistice in July 1953 about 1,500,000 persons—7 per cent of the population—moved back to Seoul, and many more persons returned to other evaculated areas. The reopening of these areas restored the market for housing and utilities for these persons, and for regular transportation facilities between these areas and the rest of the country. Many refugees had been uninterested in building up business facilities until the war ended and they were permanently located.

[13] See League of Nations, *Memorandum on Currency 1913-1923* (Geneva, 1924), pp. 16-17, for numerous examples of accelerated inflation following the first world war. Two exceptions, however, are the inflations in Portugal and Greece from 1921 to 1923.

[14] Bloomfield and Jensen, *op. cit.*, p. 33.

[15] U. S. Bureau of the Census, *Statistical Abstract of the United States, 1954* (Washington, 1954), p. 902. In 1954 grants and credits for nonmilitary aid dropped temporarily to $123 million because a new program which was undertaken immediately after the Korean armistice by the Foreign Operations Administration did not expand until late in the year. E. S. Kerber, "Foreign Grants and Credits—U. S. Government, Fiscal 1954," *Surv. Curr. Bus.*, Oct. 1954, XXXIV, 11. Military aid furnished under the mutual security program cannot be shown by country, but only by areas as designated in the authorizing legislation. Military grants to Asia and the Pacific rose from $189 million in fiscal 1951 to $721 million in fiscal 1954; *ibid.*, 20.

TABLE II.—MAJOR FACTORS AFFECTING THE SOUTH KOREAN MONEY SUPPLY, 1945–1954*
(Prior to 1953 in millions of won; in 1953 and 1954 in 10,000 hwan.)

End of Year	Money Supply[a]	Net Government Borrowing at Bank of Korea[b]	Proceeds From Sale of Aid Goods[c]	Bank Loans[d]	Other Factors[e]
1945	11,828	81	—	4,008	7,739
1946	27,194	6,048	—	12,026	9,120
1947	53,647	21,301	−4,391	27,536	9,201
1948	73,671	37,234	−8,602	36,499	8,540
1949	130,617	83,110	−44,176	78,336	13,347
1950	290,462	202,466	−53,893	87,699	54,190
1951	784,806	202,023	−197,911	307,017	473,677
1952	1,564,117	132,614	−495,331	809,961	1,116,873
1953	3,489,600	1,721,900	−783,500	2,066,900	484,300
1954	6,687,100	5,653,000	−2,062,400	3,095,500	1,000

[a] See Table I.
[b] Borrowings by the government minus government deposits, except for deposits representing proceeds from the sales of aid supplies.
[c] Prior to September 30, 1948, covers proceeds from Government and Relief in Occupied Areas supplies. Includes Economic Cooperation Administration goods from October 1948, goods supplied under the Korean Civil Relief Program from March 1951, and goods financed by the Foreign Operations Administration and United Nations Korean Rehabilitation Administration imports from January 1954.
[d] Includes loans by the Bank of Korea and other banks to private borrowers and government agencies. It includes loans by the Federation of Financial Associations and the financial associations, but excludes interbank loans (chiefly from the FFA to the FA's).
[e] Chiefly consists of the interbranch accounts of individual banking institutions, uncleared checks and drafts and Bank of Korea purchases of foreign exchange. Beginning in 1950, also includes net UN Forces borrowings at the Bank of Korea less proceeds from the sales of government foreign exchange holdings. The main source of government foreign exchange holdings is the repayment of advances to UN Forces. In 1951–52, UN borrowings far exceeded proceeds from the sales of foreign exchange because of the delay by the UN in making these payments.
* *Sources:* Bank of Korea, *Mon. Stat. Rev.*, various issues, 1953–55.

II. *Nonbudgetary Sources of Revenue*

Lack of knowledge of Korean fiscal institutions has been another obstacle to giving useful advice. A specific example of a policy that was based on a misunderstanding of their fiscal institutions is the proposal to raise the prices of foreign-aid goods. It was believed by officials of the United Nations and by many others that this would contribute significantly toward economic stability. Although Table II shows that beginning in 1947 sales of aid goods have yielded significant amounts of revenue even though they have been priced far below market levels, they would have yielded much higher revenues if their prices had been raised. The Combined Economic Board Agreement between the United Nations and the Republic of Korea which was signed December 14,

1953, provided that "Aid goods from all sources which are offered for sale in Korea shall be sold at prices approximating those of similar items in the free market. . . ."[16] In spite of this agreement the Republic of Korea has not raised prices of aid goods. Although selling them at higher prices would appear to help balance the budget, actually because of the peculiar fiscal system in South Korea the government has been getting full value for aid goods even though it has not charged the highest prices it could get for them. This is because most governmental agencies and other organizations receiving aid goods have been reselling part of them at a profit in order to supplement their money receipts from the budget. These profits are used to finance their regular activities. If low-priced aid goods were not available, these governmental agencies would require larger budget allocations to maintain the same activities. The larger revenues that the central government would receive from selling aid goods at higher prices would merely offset larger expenditures, and the budget would come no closer to being balanced. In addition, some organizations have been able to sell their services cheaper because the receipt of aid goods at low prices has reduced their cost of production, but the government would not necessarily decide to stop subsidizing the activities of these organizations.

The distribution of gasoline, which is one of the most important aid products, is a good example of the way in which the Korean government distributes aid goods. Gasoline is imported and sold wholesale by an organization that represents a group of American oil companies, but is controlled almost completely by the Korean government. The bulk of the gasoline goes to government bureaus, the army, and various companies that the government wishes to favor. The organizations use some of the gasoline themselves and sell the remainder at market prices. The profits from the sales of gasoline provide operating funds that do not appear in the budget. Through this means the government also subsidizes users of various services such as low-priced bus transportation.

The distribution of fertilizer, which is another important aid product, has frequently been criticized by Americans. A reporter recently wrote that fertilizer sales in 1954 produced only 3 billion hwan instead of 40 billion hwan because the government fixed the price of fertilizer with little regard to economic realities in order to make itself popular with farmers. Actually, only a part of this difference represents a subsidy to farmers. Although the Korean Federation of Financial Associations which distributes fertilizer officially charges farmers prices

[16] U. S. Committee on Government Operations, 83rd Cong., 2nd Sess., *Relief and Rehabilitation in Korea,* House Rept. No. 2574, Union Calendar No. 882 (Washington, 1954), p. 70.

for fertilizer not far above those paid for it, farmers usually must make additional payments in order to insure the prompt delivery of their fertilizer. The Financial Associations are a major source of funds for local government expenditures, and they also use the profits of their fertilizer business to finance some of their business activities that operate at a loss. Although Westerners should not be surprised to discover that countries in the Far East also have agricultural subsidies, the same reporter severely criticizes the Republic of Korea for "outright theft, for political purposes, of most of the fertilizer money."[17]

Another United Nations proposal that was based on a misunderstanding of the Korean fiscal system was the suggestion to lessen inflationary pressures by curtailing the expansion of bank loans. The Combined Economic Board Agreement of December 14, 1953, requires that the Republic of Korea set a limit on the annual expansion of credit granted by the Bank of Korea and the commercial banks.[18] Although Table II shows that from 1945 to 1954 the expansion of bank loans accounted for approximately one-third of the expansion in the money supply, it is necessary to examine the nature of these loans before knowing whether curtailing them would actually reduce inflationary pressures. If bank loans in Korea were granted for investment in plant and equipment, the United Nations proposal to set a limit on the annual expansion of bank credit would undoubtedly help check the rise in prices. But in South Korea the bulk of the bank loans are used to make up losses incurred by government and other important enterprises that sell their goods and services at prices less than cost. Recently a Seoul newspaper frankly announced that the Bank of Korea had fixed at 13.5 billion hwan the funds to be supplied financial institutions for the second quarter of the fiscal year.[19] It is a general policy in South Korea for the government to subsidize the consumers of many goods and services through its lending program. As long as the Republic of Korea maintains these subsidies, if bank loans were not available, the government would be forced to find some other source of revenue such as budgetary allocations. Politically, eliminating subsidies by setting prices that cover costs of production would probably be impossible. Not only would Koreans oppose paying higher prices for subsidized goods and services, but political leaders would probably not be able to explain to the Korean populace how inflation could be prevented by raising the prices of many important goods and services.

Westerners frequently have not realized that Korean banks are significantly different from commercial banks in the United States. In

[17] Worden, *op. cit.*, 181.

[18] U. S. Committee on Government Operations, *op. cit.*, p. 69.

[19] *Seoul Shinmun*, Oct. 4, 1955.

Korea the principal function of these banks is to provide revenue for the government. The Taehan Coal Company, for example, covers its yearly deficits by obtaining "loans" from various banks. Normally, these "loans" involve issues of new money, but on those rare occasions when the banking system has funds available to make real loans, they are treated in the same way. Needless to say, the Taehan Coal Company would be badly shocked if anyone suggested that it repay its "loans." Although Korean banks charge interest, and official rates of interest in Korea seem normal to Westerners, considering inflation, they "lend" money at substantially negative rates of interest. Money shops called Kye, rather than the big government banks, are the equivalent of Western commercial banks as far as loans are concerned. These money shops are illegal, although not strenuously suppressed. They pay depositor members 15 to 20 per cent interest per month and charge their borrowing members comparable rates. They are an important source of capital for investment in Korea today and have provided the resources for the rapid recovery of retail trade since the Korean war. In one respect the big banks are similar to commercial banks in the United States. They perform the service of transferring funds via check, which is important to the government and the larger industries because of the hazard of carrying large amounts of currency.

Both of the major nonbudgetary sources of revenue in South Korea—bank loans at negative rates of interest and receipts from the resale of aid goods—are extremely cumbersome, and cause great confusion in the statistics on government finance. These nonbudgetary revenues, however, may be transferred from one organization to another as need requires. The government may determine the allocation of additional funds by deciding which enterprises are to be permitted to buy aid goods at less than market prices. Also, further subsidies may be granted in the form of bank loans at low interest rates to the various government organizations.

It is occasionally claimed that some civil servants become rich from the unofficial income attached to their positions while others are forced to neglect their official duties by accepting outside employment. Actually, a well-organized government bureau in Korea will have regular procedures whereby those members of the staff who can obtain funds from nonbudgetary sources transmit their take to other members of the staff performing essential services which do not bring in large amounts of extra income. From the Korean point of view, an advantage of using nonbudgetary funds is that Korean officials can politely agree with their foreign advisors when changes in spending are suggested, but can deprive organizations of nonbudgetary sources of revenue necessary for their effective operation.

Most Westerners have not realized that the Korean policies of pricing consumer goods and services below market levels and using bank loans and aid goods as sources of government revenue are important to the political stability of the Republic of Korea. Eliminating these policies would abolish important sources of political power. By requiring important enterprises to provide services to the public at less than cost, the central government can keep the lower echelons of government in line through its control over their sources of funds. Such a pricing policy also makes the government appear as a benefactor of the public. Although the Republic of Korea is frequently criticized for the way it has used its economic powers, some method of minimizing social tensions and maintaining a stable government is undoubtedly desirable. If the Republic of Korea were deprived of these economic powers, it might be forced to resort to less acceptable means of control. It should be added that although the government of South Korea is not a democracy in the sense in which this form of government is understood in the United States, the Korean assembly is not controlled by President Rhee. The assembly often passes laws that are not approved by him, and there are frequent examples of compromise and agreement between the executive and the legislature.

III. *The Ideological Environment*

A major increase in the productivity of the Korean economy would, of course, solve most of its fiscal problems. Many Westerners have suggested that the productivity of the Korean economy could be improved by transferring public enterprises to private ownership and management. This suggestion is also based on a lack of understanding of Korean attitudes and institutions. As a result of its vesting of all Japanese property in South Korea, the Republic of Korea owns practically all industrial enterprises of any size and a large amount of residential real estate. However, even if the Republic of Korea sold large amounts of this property, it probably would not cease granting the new owners bank loans at negative real rates of interest, allocating low-priced aid goods to them, or setting the prices of their services or products below market levels. The small amount of property already sold appears to have been purchased by supporters of the present government, and the funds with which to buy them have been obtained from bank loans. Koreans do not distinguish sharply between government and nongovernment, and in so far as such a distinction is drawn, it is largely a matter of size. To Koreans, the government should not be concerned with small matters, but anything that is large, whether it is a business, a sports organization, or a church, is a legitimate concern of the government. It is traditional in the Far East for the government to

operate or closely control all significant economic activity. Also from the time the Westernization of oriental societies was begun, almost all Asiatic intellectuals have been devoted to socialism. They have typically believed that Marxism was the "most advanced" economic theory of the West.

When the land-reform bonds were issued in payment for lands that were taken from Korean landowners, it was suggested that the holders of these bonds be permitted to use them to buy former Japanese plants. However, this policy will probably not be followed generally because bondholders are frequently members of the opposition. Also, because of their intense nationalistic feelings, Korean leaders would never permit foreigners to purchase this property.

Another obstacle to establishing free private enterprise in South Korea is that the necessary legal conditions do not exist. Although there is a code of laws, a Korean lawsuit is not even in theory an effort to establish an impersonal concept of justice, but an effort to find an acceptable compromise between the parties. Viewed from the standpoint of limiting social tensions, there is much to be said for the Korean system. Economically, however, it has the unfortunate result that no contract is really binding and a further element of risk is added to all business operations. Under present conditions wealthy Koreans would not want to purchase large enterprises except at extremely low prices. Funds invested in a large plant are simply exposed to the exactions of the bureaucracy.

IV. *Fiscal Inadequacy*

Western advice was probably not needed to inform the Koreans that the way to prevent inflation was to balance their revenues and expenditures so as to avoid expanding the quantity of money. However, some of their difficult fiscal problems should be mentioned. Even though taxes have been far from adequate, they have taken a large part of the national income. Per capita income is less than $100 per annum, of which the government either for domestic investment or government expenditures takes almost one-third.[20] Raising tax rates also has a serious disadvantage. Although most South Koreans are hostile to the Communist government in North Korea, their hostility is not based on Western ideas of freedom and democracy, but, among other things, on the fact that taxes are considerably lower and most consumer goods are cheaper in South Korea.

On the expenditure side, although a large part of the cost of maintaining the armed forces is borne by the United States, the remainder is still a heavy burden. Koreans usually claim that military expenditures are too small, and because of the present precarious situation of South

[20] See United Nations, *op. cit.*, p. 41.

Korea Westerners cannot argue with any degree of assurance that they are wrong. Eventually the Republic of Korea might be able to reduce its expenditures on defense without undermining its security by developing an active military reserve on the Swiss model, but this would have little effect on their fiscal problems in the next few years. Most civilian agencies appear to be heavily overmanned, and many subsidies seem unnecessary. Politically, however, reducing these expenditures would be very unpopular.

As in many other countries that have recently obtained their national independence, there are in South Korea great pressures to expand expenditures for developmental projects. The United Nations has participated in the formation of ambitious developmental programs in spite of the fact that such programs would undoubtedly stimulate further inflation. A recent five-year program prepared by the UN for South Korea provides that total investment increase from $198 million in 1953-54 to $468 million in 1955-56 and then decline to $300 million in 1958-59, when self-sufficiency is expected to be achieved.[21] It also provides for a 37 per cent increase in nonmilitary government expenditures from 1953-54 to 1958-59.

Another pressure tending to expand government expenditures, which is unfamiliar to most Westerners, is the need to raise the salaries of government employees so as to make it unnecessary for civil servants to rely on bribes or solicited contributions as a source of income. In recent years the government has raised the pay of civil servants; however, the services of bureaucrats are still usually unobtainable without countenancing acceptance of some kind of contributions, and the armed forces and police solicit contributions by force. Although such contributions would be considered immoral in most Western countries, in Korea they are usually accepted without any feeling of impropriety. These contributions create an unfavorable environment for business by subjecting it, if successful, to heavy exactions from bureaucrats. They cause private enterprise to be directed to activities that do not attract attention and cannot easily be expropriated. Such contributions are also slightly inflationary because borrowers must usually make additional bank loans to cover their cost.

The Republic of Korea has attempted to sell government bonds to the public since 1950, but it probably can not reduce inflationary pressures significantly in this way. Because free market rates of interest have varied from 60 to 240 per cent per year, private investors will not voluntarily purchase five-year 5 per cent National Bonds. About two-thirds of these securities have been sold to the Bank of Korea and other government banks and appear to be no more than a means of credit

[21] *Ibid.*, pp. 88, 106.

creation through the banking system. The rest of the bonds have been sold to private owners (including government enterprises which in some cases probably have to borrow to buy the bonds) primarily by some type of compulsory allotment. It is curious that compulsory sales of government bonds have been used to narrow the gap between low official exchange rates and the much higher black market rates for foreign exchange. Persons buying foreign exchange at the low official rates—including Korean students who come to the United States—are compelled to purchase a certain amount of bonds. Out of bonds worth 3,300 million hwan issued in 1954, 1,475 million hwan were sold chiefly by tying them in with sales of foreign exchange.[22] The amount of bond purchases required has varied, but the total amount of bonds plus the official rate paid for exchange tends to approach the various black market rates. Because of the rapidity of inflation, the bonds soon lose almost all value.

V. *Conclusions*

There are no easy solutions to the problem of inflation in South Korea. Although numerous efforts have been made to end inflation, price stability has not been achieved. Something could be done if it were possible to change their legal institutions and their traditional conceptions of the proper relationship between government and both persons and business firms. This would take time and undoubtedly would require establishing much more Western control than exists at present. Such a program is out of the question because of the intense nationalistic feelings in South Korea and probably also because it would conflict with conceptions in the West of their relationship with other countries of the world. This study does suggest that Western advisors might be more useful if they accepted inflation as inevitable, at least for the present, and attempted to make the inflationary monetary system in South Korea work as well as possible. For example, in order to improve business and government accounting, a significant contribution could be made by discarding Korean money as a unit of account and developing an alternative unit of account as was done in China from 1937 to 1949. Also, the social cost of using hoarded goods as stores of value could be reduced if it were possible to provide a sufficient quantity of an alternative store of value such as foreign currency or "precious metals." Finally, careful attention should be given to the rate of increase in the money supply. If acceleration can be avoided, the system may prove sufficiently stable. In this respect, the economic aid program of the United States, in addition to its other benefits, has probably contributed much toward the achievement of a workable monetary system in South Korea.

[22] Bank of Korea, *Mon. Stat. Rev.*, Jan. 1955, No. 74, p. 43.

SOCIALIST THOUGHT IN GREAT BRITAIN

A Review Article

By PAUL T. HOMAN*

After the electoral defeat of the British Labour Party in 1951, the socialist intellectuals of the party began a process of what they called "rethinking Socialism." The problem was sharply stated by Kingsley Martin: "If there is something like an intellectual crisis in the Labour Party now, and if the Party had no positive policy for the 1951 election, that was largely because the leaders of both the Parliamentary Party and the trade union movement did not know where they were going after they had once established the principles of the Welfare State. . . ." (p. 1)[1] The reassessment during recent years has been partly by individuals, partly organized on a group basis, especially by the group which calls itself Socialist Union and issues the monthly journal *Socialist Commentary*. One outcome has been a spate of pamphlets and, during the past year, two outstanding books by C. A. R. Crosland and John Strachey. The purpose of the present article is to review a select list of these documents and to set down a few reflections based on them.[2]

The occasion for this reassessment arose out of the very success of the Labour Party program during the party's period in office. It had nationalized all the industries it had set out to nationalize (coal, electricity, gas, the transport industries, steel and The Bank of England); it had reenforced the position of the trade unions and tied their activities into national political objectives; it had initiated a large housing program; it had established a system of social welfare service as comprehensive and costly as the British economy

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[1] See next footnote.

[2] The documents to which direct reference will be made are as follows: C. A. R. Crosland: *The Future of Socialism* (London: Jonathan Cape. 1956. New York: Macmillan. 1957. Pp. 540); John Strachey: *Contemporary Capitalism* (London: Victor Gollancz. New York: Random. 1956. Pp. viii, 302); Socialist Union: *Twentieth Century Socialism—The Economy of Tomorrow* (London: Penguin Books. 1956. Pp. 152); Kingsley Martin: *"Is This Socialism?"* Fabian Tract No. 291 (London: Fabian Society. 1951. Pp. 20); G. D. H. Cole: *World Socialism Restated*. New Statesman pamphlet. (London: Fabian Society. 1956. Pp. 48); Hugh Gaitskill: *Recent Developments in British Socialist Thinking* (London: Co-operative Union. 1956. Pp. 42); *idem: Socialism and Nationalization.* Fabian Tract No. 300 (London: Fabian Society. 1956. Pp. 36); R.H.S. Crossman: *Socialism and the New Despotism.* Fabian Tract No. 298 (London: Fabian Society. 1956. Pp. 24).

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could reasonably support; it had initiated a full employment policy based on financial controls; and through tax measures it had scaled sharply downward the personal income derived from property and high salaries. The Welfare State, as it came to be called, was a monumental accomplishment for a five-year tenure of power. It put into effect what Kingsley Martin called "a new list of Rights of Man," and he predicted that "No constitutional government in the future will dare directly withdraw these rights." This prediction is borne out by the ensuing behavior of the Conservative government, which with only slight modifications carried forward the social program.

The new question is whether the Welfare State and reformist measures, built on a private enterprise base, are all that is wanted; or whether socialism in the traditional sense is to be sought through progressive enlargement of the nationalized area. The intellectuals of the British left are deeply divided on the correct answer to this question. But there is little evidence that the Labour Party intends to move towards socialization of the means of production.

On the other hand, thinkers of the left are proposing rather far-reaching innovations in the way of social and economic change, and are still calling themselves socialists. In reviewing the recent writing within this field, I am left with three strong impressions: first, that the persistence of ideological stereotypes of capitalism and socialism muddies the discussion of ends and means—assuming that the ends in view are something definable in terms of public policies and potentially attainable in the calculable future; second, that the older socialists are frustrated in the attempt to formulate programs which give any considerable scope to their traditional socialist principles; and third, that action programs are tending to take a reformist turn which can be called socialist in principle only if the term takes on a much diluted and extended meaning.

I.

The really impressive item in the programmatic literature is Crosland's *The Future of Socialism.* Mr. Crosland, a former member of the economics faculty at Oxford and former member of Parliament, engages in economic analysis marked by a high degree of competency. His critical thought is uncluttered by traditional socialist clichés, and his thought on policy by old political commitments. His purpose is at bottom to crystallize a working program for a party of the left comprising three qualities: expediency in the sense of promoting economic progress, morality in the sense of promoting social justice, and practicability in the sense of winning elections. In carrying out the task, he avoids three common defects of much socialist thinking; emotionally overwrought criticism of capitalism, the Utopian fallacy, and Marxist dogma. He takes a fresh new look at contemporary problems and possible solutions.

Crosland arranges his exposition under five headings: the transformation of capitalism, the aims of socialism, the promotion of welfare, the search for equality, and economic growth and efficiency. The broad pattern of his thinking may be stated somewhat as follows: the British reforms of the past two decades have been so far-reaching that the appellation "capitalism" is hardly

applicable in the sense in which it was applicable for the preceding century. The resulting subordination of private industry to social purposes and social control has brought into effect much of what the older socialists sought: the end of primary poverty, full employment, stability of livelihood, and greater equality of both personal and real income distribution through the social services. On the economic front, further rise in the standard of living depends upon increasing productivity. There is no prima-facie case that this will be promoted by much extension of nationalization. As a basic industry, laggard in development and monopolistically controlled, steel should be renationalized; but there are few other good candidates for this treatment. In general, the proper role of the state can be defined by operating pragmatically without too much regard to older socialist doctrine. In the context of rising income, greater economic equality can be achieved by a variety of means—through higher wages, extension of social services, taxation, dividend limitation, death duties, capture of capital gains and so on. Where capital investment and technical innovation lag, government can intervene to force the pace, as it can also to minimize the effects of private monopoly.

Looking over this statement of directions for economic policy, an American Fair Dealer might find them on the whole both familiar and acceptable. This effect is, however, somewhat illusory, since Crosland is more of a "statist" than one would normally find in American policy-making circles. He finds more probable occasions for state intervention and a higher degree of necessary state control than would appear in any programmatic statement in the United States.

In any case, these precepts of economic action, while essential, do not provide the central focus to Crosland's agenda. To him, "socialism is about equality," but the greatest barrier to the kind of equality which should exist in a just world is social inequality. The peculiar British class basis of educational opportunity greatly restricts the field of "careers open to talent," poisons all social relations and exacerbates social resentments. The breaking down of class barriers therefore appears to Crosland as the first priority of social policy, and this cannot be directly accomplished by economic reforms, but only by a thorough-going revision of the educational system. Within the context of this reform, the approach to practicable degrees of economic equality, consistent with efficiency and growth, would be so much the easier.

From the economist's viewpoint, no doubt the most interesting point in Crosland's analysis is his treatment of the reasons for abjuring extensive nationalization. On this point he is detailed, pointed and persuasive. Part of the reason is the unsatisfactory performance of the industries already nationalized. The bill of particulars is extensive, including the administrative difficulties of monolithic monopolies, the failure to attract the best administrative talent, and so on. As an economist, Crosland lays special emphasis on their failure to contribute to the essential process of capital accumulation, comparing them unfavorably with private industry on this point. Their price policy has been a cost-covering one only.

This leads to a broader conjecture whether the democratic pressures on nationalized industries will not normally be toward low prices and high wages at

the expense of business saving. From this, he presses on to analysis of reasonable expectations concerning progressiveness, flexibility, foreign trade, labor relations, wage levels, managerial structure, and so on. He finds no reason to suppose that nationalization, as a general rule, will either improve economic performance or contribute materially to a scheme of social relations conforming to the ideals of socialism. Given the powers of the state backed by a proper attitude toward their use, he finds the specific matter of ownership highly irrelevant. In developing this theme he provides a cogent refutation of Marxist thinking, as well as a deadly account of the Russian outcome.

Since social ownership of the means of production is usually considered the benchmark of socialism, one begins to wonder how Crosland, repudiating this approach, can call his book, *The Future of Socialism.* A better title would have been *In Place of Socialism.* One might attribute his title to the time-honored practice of retaining "good words" with emotive power while their meanings turn sharp corners—like "democracy" in the contemporary dictatorships. But there is no chicanery in Crosland. The semantic point does not bother him, since he is writing to persuade people who call themselves socialists, and who entertain certain ideals which they have heretofore thought could best be attained through particular institutional forms. To him the heart of the matter is in the ideals and not in the means. The economic role of government is large, its responsibility for promoting stability and growth is overriding, and its concern for just relations fundamental. These conditions place no taboo upon using private enterprise to the extent of its useful economic function consistent with pursuit of those ideals. The lines of policy already firmly embedded in British practice are described by Crosland as follows: ". . . it constitutes a major victory for the Left . . . that the majority of Conservatives today would probably concede the right, indeed the duty, of the state to hold itself responsible for (1) the level of employment, (2) the protection of the foreign balance by methods other than deflation, (3) the level of investment and the rate of growth, (4) the maintenance of a welfare minimum, and (5) the conditions under which monopolies should be allowed to operate" (p. 499).

The benchmarks of a Labour Party economic program are stated in the following terms: "The main objectives of planning . . . are then a steadily rising level of investment, and a sufficient volume of savings and risk-capital to match it; a volume of home demand which does not pre-empt goods away from export; a situation in the labour market which does not give rise to a wage-price spiral; and an increase in the proportion of the national income devoted to social expenditure—all these to be achieved against a background of growing social equality" (p. 502).

The little book issued by Socialist Union, *Twentieth Century Socialism,* represents a point of view substantially similar to that of Crosland. It contains little economic analysis and is concerned mainly with three objectives: first, to persuade people of the continuing necessity for active campaigning for the ideals of socialism; second, to restate those ideals; third, to indicate certain basic approaches to their attainment. The emphasis throughout is upon harnessing the economic apparatus to the attainment of human values. ". . .

how to bring economic power under social control . . . has always been at the root of socialist thought . . . what socialists have sought is a system, an organization of the economy, based on principles which would ensure that economic power was made to serve social ends" (pp. 119-20).

The principles of institutional organization are stated in undogmatic terms, ". . . socialist planning aims at achieving economic security, fair shares and an expanding economy" (p. 134). The principles to be followed are three: the balance of power, strategic participation, and social accountability. The balance of power principle is based upon presumptions not greatly different from those of J. K. Galbraith's "countervailing power." Business, labor and consumer interests will organize to exercise power, and government will intervene to establish an appropriate balance between these conflicting private interests.

The principle of strategic participation requires the government to take possession of economic power, not by wholesale nationalization but by intervention at strategic points. Fiscal control through the budget is the most important instrument of planning, especially in pursuit of stability and full employment. Equality can be promoted by taxation and by acquiring equity shares and a portion of other accumulations of property. Direct investment may be required in some key industries, either by full nationalization or by operation of individual publicly owned competitive firms. The principle of public accountability is to be enforced by a variety of measures and sanctions for the protection of consumers and for elevating the status of workers in their productive environment. As will be seen from this catalogue, the thinking of Socialist Union runs along strongly reformist and interventionist lines, but stops far short of "socialism" in any of its traditional meanings.

Special interest attaches to the thinking of Mr. Gaitskill, the present head of the Labour Party. Gaitskill is an economist, an intellectual and a politician. These different roles necessarily create a certain ambivalence in his approach to problems of policy. At the same time, the combination of roles places his discussion of issues on a higher plane than would normally be expected of a political leader. As an economist he has a perfectly clear understanding of what economic reforms can be accomplished under a private enterprise system and the limitations to Utopian hopes under socialism. As an intellectual, the issues are very clearly sorted out in his mind. As a political philosopher, he has a deep respect for individual freedom and devotion to democratic processes. As a political leader, he has to hold the reins over an unruly team of persons with diverse interests and aspirations, and to promulgate lines of policy designed to win elections. As a socialist, he is the least dogmatic of men, willing to proceed pragmatically toward such goals of economic stability, justice and equality as are reasonably to be hoped for in the calculable future under democratic processes.

A British political leader in Gaitskill's position has to make his peace with the hard core of trade-union influences in the Labour Party. While many leaders and members of unions are no doubt socialists in principle, the basic unionist urge is toward some benefit in the here and now, not in some future socialist state. Consequently, any political leader, whatever his princi-

ples, is heavily committed to reformist policies consistent with the existing private enterprise basis of industrial life. This leaves a good deal of open territory for argument and maneuver, according to whether one thinks of reform as the goal or as a way station to some future socialist state. The difference of goals in view creates deep cleavages in the Labour Party, making it difficult to construct a platform on which to base its next electoral appeal. In this context, Gaitskill appears to lean to the reformist rather than the "subversive" side, placing him "at the right of the left."

The broad outlines of his philosophical position are best stated in his pamphlet on *Recent Developments in British Socialist Thinking*. The acid test of British socialists is, however, their attitude toward further socialization of the means of production. Gaitskill faces this problem in *Socialism and Nationalization* and I shall limit my attention to that pamphlet. He states socialist ideals as follows: "In short, the society we wish to create is one in which there are no social classes, equal opportunity in the sense described above ['for the pursuit of happiness, however people decide they can best achieve this'], a high degree of economic equality, full employment, rapidly rising productivity, democracy in industry and a general spirit of co-operation between its members." He approaches the subject of nationalization pragmatically, as a possible *means*, to be judged on its merits, toward the attainment of these *ends*. The traditional linking of public ownership with the ideals of socialism was based on its supposed necessity because: (1) the existence of unearned income is wrong; (2) capitalism inevitably engenders unemployment, economic insecurity and waste; (3) private possession of capital inevitably confers undue power; (4) economic competition is fundamentally unethical and unchristian, and prevents a real spirit of cooperation. Gaitskill proceeds to reexamine this traditional linkage.

On the first point he finds that, when compensation is paid to prior owners of nationalized industries, the redistributive effect is much diluted and that other methods are available which have a very considerable equalizing effect. On the second point, if full-employment policies are capable of successful application to a capitalist economy, the advantage of public ownership on this point disappears. He withholds judgment as to the probable degree of such success. On the third point, he finds that the earlier irresponsible power of capitalist enterprise has been much limited by trade-union and state action. While, as experience shows, nationalization in some degrees breaks up or diffuses power, it creates a new problem. As he says, "I doubt if there is any escape from the dilemma that the more independent the boards [of nationalized industries] are allowed to be, the more they will exercise power without responsibility, and the less independent they become, the greater the risk of over-centralisation and lack of enterprise" (p.14). On the fourth point, the ethics of competition, he is noncommittal. Across the board, the general impression created is that Gaitskill regards the whole question of industrial organization to be open to reexamination, free of older socialist dogma.

Upon reviewing experience with the nationalized industries, he finds real accomplishments and is not "disillusioned." At the same time, serious problems have shown up. These very largely stem from large-scale management.

The deadening effect of monopolistic centralism imposed upon these industries may yield to administrative improvement. But Gaitskill clearly has no conviction that the structure should be imposed upon others. A case-by-case, one-at-a-time approach is suggested without prior assumption that the circumstances will be found favorable to nationalization. He ends by drawing a distinction between nationalization and public ownership. He inclines to the idea that the state should gradually acquire equity shares in privately owned enterprises. "The state may become the owner of industrial, commercial or agricultural property without necessarily exercising detailed control even over an individual firm—much less a whole industry" (p.35). Such assets—acquired from death duties, budget surpluses, and conceivably a capital levy—could be held by public investment trusts. To the extent of such investments, what is now private property income would become public income, and capital gains would accrue to the public, serving the objective of greater equality. "How far they [the investment trusts] would exercise control over the companies in which they held shares is not a matter on which it would be wise to be dogmatic now" (p. 35). Other possible forms of mixed ownership and control are envisaged as possibilities, especially where risks are too great for private enterprise alone or it is laggard in undertaking essential lines of production. The whole approach represents a thoroughly "statist" or interventionist viewpoint. But it parts company with traditional stereotypes of what a socialist economy would be like.

We now come to Mr. Crossman—journalist, member of Parliament, and long an influential force in party councils, especially on international political affairs. His pamphlet, *Socialism and the New Despotism,* is more narrowly focused than any of the writings referred to above. He is concerned specifically with the concentration of economic power. What he has to say illustrates the truly difficult situation of those ageing socialist politicians who try at once to be faithful to their socialist principles and to engage in program-making for the Labour Party.

Crossman has adopted as applicable to Great Britain J. K. Galbraith's stereotype for American industry under the name of "oligopoly"—a convenient and rather more realistic successor to "monopoly capitalism." He rejects Galbraith's favorable judgment of performance under American conditions—finding private power too concentrated, distributive injustice too pronounced and competitive safeguards too weak. Therefore the industrial oligopolies must be socialized. The case having been made, Crossman then goes programmatic—with astonishing results. He places three fields on the action agenda: municipal housing and nationalized transport and insurance—in other words, fields to which the discussion of industrial oligopoly is totally irrelevant. His excuse for this delimitation is that "Neither the workers in industry nor the voters are well acquainted with the serious Socialist case for public ownership." It is "prudent, therefore, to select industries where even the non-Socialist can be convinced that it is desirable" (p. 13).

Nationalization alone still would not quiet Crossman's anxieties about power. He distrusts concentrated economic power wherever found—on the boards of nationalized industries, in the state bureaucracy, in the trade unions.

The Coal Board, for example, has powers greater than those of private industrial groups, and they are little linked to the broad objectives of a socialist program, while "the state bureaucracy itself is one of those concentrations of power which threaten our freedom" (p. 12). To Crossman, "the defence of personal freedom and personal responsibility in a managerial society" are equally important with economic aims.

His constructive thinking runs in two main directions. One is toward introducing a strong element of worker control into the structure—a shadowy remnant of the guild socialism so popular in the 1920's and now almost extinct in Great Britain. He has, however, no real notion of how this could be done. He also has no faith that nationalization would give rise to higher wages than those available from private industry. The reward to workers from the reorganization of control would presumably be a sense of participation.

His other, and principal, proposal is for constitutional reform designed to "enlarge freedom and stimulate an active democracy." On the economic side, this would entail a standing Parliamentary committee responsible for each nationalized industry; but his thought reaches further into fundamental reform of party structure and Parliamentary procedure. He regards such reform "at least as important as the extension of public ownership and redistribution of wealth." "Indeed, unless the two march in step, we shall merely create a new Leviathan" (p. 24).

Without further elaboration, it is difficult to assess this political thinking. But the economic proposal of direct supervisory control over nationalized industries by Parliamentary committees raises an issue of the most fundamental importance. Heretofore, nationalization has proceeded on the principle, so vigorously propounded by Herbert Morrison, that industrial management must be thoroughly insulated from direct political contacts. This was based on the presumption that making the course of industrial operations an immediate and perpetual occasion for political oversight, and therefore controversy, would be the surest blockade to efficient industrial management. This leads into the deeper question, whether comprehensive socialization is amenable to democratic controls, or whether it implies an essentially totalitarian structure of control. Crossman does not pose this question, but it crops up in the thought of Gaitskill, Crosland and others, and is, I judge, one of the reasons for their coolness toward an ambitious program of nationalization.

As against the moderation and reservations of people like Crosland and Gaitskill, Professor G. D. H. Cole, in his *World Socialism Restated,* continues his persistent advocacy of socialism in its traditional meaning. "I want to make an end of the entire system of capitalism" (p. 7). There is no need to repeat the general argument, since it is familiar. Even the old clichés crop up baldly. "American capitalism can sustain high production and employment only by giving an appreciable part of its products away . . ." (p. 17). Cole is the unreserved enemy of those moderate tendencies which I have reviewed above. " . . . The Labour Party has, I think, to choose between adopting a much more drastic Socialist policy and failing to act effectively even as a reformist party . . ." (p. 23). His attitude toward international socialism is equally unbending. The British socialists should support socialist tendencies

and "anticolonial" movements, wherever found and whatever their political corollaries. This places him in total opposition, for example, to the American alliance. He is ambivalent toward the totalitarian tendencies of contemporary socialist states. He praises democracy, rejects the communist philosophy and deplores "the ruthlessness, the cruelty, and the centralised authoritarianism which are basic characteristics of Communist practice" (p. 14). At the same time, he enters excuses for the use of whatever methods are necessary to break down exploitive political and economic institutions (*e.g.*, pp. 10-12).

Having adopted this intransigent posture, Cole is quite unwilling to make his peace with those practical, everyday methods by which other well-intentioned people hope to effect some marginal improvement in the human state. He appears to have given up hope that the Labour Party will be an effective instrument of progress toward true socialism in the calculable future. The elect, it appears, should isolate themselves into international enclaves of the true devotees—a sort of monastic order of the faithful awaiting the apocalyptic day.

II.

To conclude this survey, we turn to Mr. Strachey's *Contemporary Capitalism*. It needs to be set apart from the documents reviewed above, since it is an entirely different sort of book. In the 1930's Strachey was convinced that the advent of communism was both inevitable and desirable—views defended in *The Nature of Capitalist Crises* and *The Coming Struggle for Power*. (I recall thinking, when first reading *The Coming Struggle for Power*, how convenient it was to possess a machine by which one could get clear answers to troublesome questions simply by turning the handle.) By 1940, he had discarded these views, due perhaps primarily to the influence of Keynes. From 1945 to 1950 he was a responsible member of the Labour government. Afterwards, he strongly defended the accomplishments of that government as a long step toward achieving socialist goals. He placed great faith in control over the central financial mechanism of the economy.

Strachey has now taken time out for reflective thought; his book is a restatement of his philosophical position and a reinterpretation of the process of social change. The title is somewhat misleading, since the book contains very little on the institutional characteristics of contemporary economic organization—in fact, hardly more than a stereotype of oligopoly. What he does, essentially, is to set up two abstract creatures, capitalism and democracy, put them in the prize ring, and let them fight it out, while he cheers in the corner of democracy. Capitalism is a sort of brutal monstrosity—the apotheosis of every inhumane, antisocial pursuit of private self-interest. Democracy is the champion of all generous-hearted efforts to attain general well-being and communal interest. The complete victory of democracy would usher in socialism.

In a series of early chapters, Strachey reviews Ricardian, neoclassical and Marxist theory, with special reference to the labor theory of value and the theory of absolute and relative immiseration. Economists will not find much to interest them, since Strachey is a biased and at times not very accurate

reporter. The later marginalist and equilibrium theorists are disposed of summarily, as having dropped the really important question of the social distribution of income among classes or groups. He is especially interested in the development of social accounting as a method through which to reopen the old question of social distribution on a factual basis. Pending that basis, he commends Marx for asking the right questions and for devising a useful *method* of analysis, while he deplores the later translation of Marx into a rigid *system* of dogma and recognizes the failure in the field of prophetic vision.

Out of all this Strachey assembles a very personal, and highly debatable view of the validity of Marx's analysis, especially with respect to the prospects of the laboring classes. He takes the position that Marx's theory of progressive exploitation was a correct interpretation of a *tendency* inherent in capitalism as such. This tendency was, however, in practice offset by influences of a noneconomic character.

> Marx cut his way through to the essential tendency of capitalism, which, however you express the point, is to channel the whole of its ever growing *surplus* towards the owners of the means of production to spend or invest, and thus to deprive the mass of the wage earning population of any part of it . . . unless we keep this conclusion in view, there is no hope of our understanding the world in which we live. (p. 86)

If this says what it appears to say, Strachey accepts as the central tendency of capitalism Marx's view that "the level of wages would be determined by what it took to produce the worker" (p. 88). "*In the political and social conditions with which Marx was alone familiar,* the tendency of wages to a subsistence level was over-riding" (p. 95; italics Strachey's).

Strachey at once points out that this is not what happened historically. His answer to the apparent paradox is that noneconomic forces lying outside capitalism "over-rode" the tendencies inherent in capitalism. This is the clue to his whole pattern of thought. His "capitalism" is an abstract model without sociological content; or else, if it has any such content, it is limited to what Marx thought he saw in his own immediate environment. Moreover, the model is so constructed that labor is always in such excess supply that employers will never be under the competitive inducement to bid up the rate of wages as productivity increases. Starting with a model of this sort, we must by definition attribute any improvement in the general standard of living to external forces.

For Strachey these moving forces are trade unions and political democracy. To them alone the *whole* of the improvement in real wages is attributed. "What has really happened is . . . that the wage earners, by political and trade unionist efforts, sustained over a century, have *forced up* their standards of life in the teeth of the economic tendencies of the system" (p. 109). He does not bother even to mention, much less to rebut, the idea that competitive bidding for scarce resources may have something to do with their rate of remuneration.

This doctrine encounters fairly rough going when one faces the circum-

stances of the United States. But Strachey is intrepidly dealing in universals, so he bravely faces the challenge. He says (p. 109n):

> The apparent exception is America in the second half of the nineteenth century. There the wage earner's standard of life undoubtedly rose while trade unionism remained weak. But is not this accounted for, first, by the existence of free land? By taking up free land an American wage earner could at any time escape right out of the capitalist system, as it were, back into the world of "small commodity production." And, second, the *political* pressure exercised by the American wage earners, and more especially by the American farmers, during the whole period was far from negligible.

This is a nice, neat account of the foundations of economic well-being in the United States; and it would be a pity to deface it with critical commentary. He returns to the same subject at a later point (pp. 153-54) at greater length but to the same purpose.

Strachey proceeds to an analysis of contemporary democracy which he ultimately defines as "the diffusion of power throughout the community" (p. 179). This definition carries over from the political to the economic field, and ends up in the Utopian state of "perfect cooperation in perfect liberty" (p. 179). Since capitalism is by definition "strongly inequalitarian" and "potentially anti-democratic," clearly the end of the democratic process is socialism. Given this outcome an economic question arises, whether the process of accumulation necessary to economic improvement will be adequately cared for. Strachey enters an optimistic prophecy. The death knell of capitalism, he finds, is the fact that it is not self-regulating. The accumulative process makes it fundamentally unstable, so that the state is necessarily called in as a counterweight. Without this, it grows increasingly unstable. "What the democratic mechanism is forcing governments, more or less unconsciously, to attempt is, in a word, the socialisation of investment" (p. 211).

Strachey concedes the argument of Keynes that a sufficiently close and intelligent control of the central monetary mechanism can minimize the instability of the system. "But what Keynes never came to realize was that this growing loss of equilibrium was itself the result of that mutation of the system, which the growth in size, and the decrease in number, of its units, with the consequent atrophy of competition, had produced" (p. 219). So we are back at the concentration of economic power, the point from which Strachey set out. Even if relative stability is achieved, the consequences under private control will still be intolerable—in distributive terms and in terms of the democratic status and dignity of the working members of the system. The final verdict on Keynes, is "What he actually accomplished was something which he did not intend . . . to help the democratic, and, on this side of the Atlantic, the democratic socialist, forces to find a way of continuously modifying the system" (p. 253).

Strachey ends his book on a highly dramatic note.

> The general tendencies of last stage capitalism and democracy conflict because it is the purpose of the former to concentrate, and of the latter

> to diffuse power. . . . Their co-existence constitutes a state of antagonistic balance. . . . In the end the power of contemporary democracy must encroach upon capitalism until its last stage also has been completed; or, alternatively, capitalism must encroach upon democracy until this young, vulnerable and experimental method of government has been destroyed (p. 255).

The two great antagonists are locked in a struggle to the death. Having set up this posture of embattled giants, Strachey falls back into a series of interesting, intelligent and realistic observations upon political processes in Great Britain and the United States and upon the political and economic prospects of countries outside the limited realm of the Western democracies. But, in the end, the slow, shifting, indeterminate processes of institutional change are forced back into the dialectical mould. The framework of class war (a phrase Strachey does not use) is still there, a Marxist residue in his thinking; though he presents it more as a latter-day version of the legend of St. George and the dragon.

Strachey's analysis—for all his intelligence, thoughtfulness and worldly experience—will not give anyone a much deeper insight into the multiple intertwined influences which are shaping our destinies. Try as he will, he is not a creative thinker. His own private mythology makes a dramatic story, but it is not a very good guide to the intricate processes of social change or to possible lines of approach to "a better world." On the programmatic front, his expectations appear to be modest: "decade by decade" the party of the left must "show a certain minimum of social change" (p. 272).

III.

"The road to socialism" used to imply a destination. The road itself was subversion. As Professor Gray says in *The Socialist Tradition,* socialists of all breeds could be described generically as people who "seek a better world, not by way of reform, but by way of subversion (using the word in its liberal and neutral sense)—or, if it be preferred, by a fundamental change in the nature and structure of society." There were different views of the process of subversion. In Great Britain the democratic process of gradualism has been the preferred method, although Laski used to toy with the idea of violence as the necessary way of removing the beleaguered forces of capitalism from their final strongholds. In any case, there was a destination. In the minds of many British socialists, the idea of such a destination appears to be dissolving. So I interpret, for example, the thinking of Crosland and Gaitskill.

The reasons, I think, are not hard to find. First of all, it has been demonstrated by experience how far social objectives can be achieved without expropriating private owners and without displacing the strong private motives which have beneficial economic effects. Second, the close view of what is involved in operating nationalized industries makes socialist politicians chary of undertaking much more of the same, and makes them skeptical of this route toward the attainment of their ideals. Finally, socialist thinking is under the shadow of Labour Party politics. Elections are won by votes; and voters

have to be moved by appeal to some felt interest or incentive. There appear to be no British majorities to be won by promising an active program of subversion.

At least in the short run then, the only feasible programs in pursuit of economic well-being, and of economic justice too, appear to be reformist in character, to be carried out through an improved version of the present system and through other policies consistent with its continued existence. The more successful these improvements and policies, the less, one would think, anyone will want to practice subversion. What, then, is "the road to socialism"? Only, as far as one can see, through some unpredictable train of social disaster. But the Marxist imperatives on this point are no longer acceptable. As a thoughtful British socialist said: "The basis of present British Labour policy is not Marxian or Webbian, but Keynesian. And so it will remain unless the West has another slump, in which case it may again become what you call subversive."

One is tempted to conclude that the paths of economic destiny of Great Britain and the United States are not so very different—being basically the building of a welfare state on a predominantly capitalistic economic foundation. This might indeed turn out to be the case. But even if it did, the parallelism would probably not be very close. The history of the two countries has been very different, their sociological structure is different, and there is a striking difference of popular attitudes rooted in these two facts. Moreover, within the economic structure the United States retains a much more vigorous constituent of competition. Since the social rationale of private enterprise is heavily dependent on the reality of competition, it is not surprising that the British have a diminished confidence in the effects of private enterprise. But one cannot even speculate upon how nearly parallel the two courses may run without considering possible lines of social and economic change in the United States, a field into which I cannot now enter. In any case, it may, I think, be inferred from the body of current thinking reviewed above that socialism as a goal is waning in Great Britain, and that the British left is in process of reorienting its whole line of policy toward new combinations of public and private endeavor—not to be blue-printed in advance, but arrived at pragmatically as circumstances and popular attitudes warrant. This approach has, indeed, long been influential in the trade union segment of the Labour Party. It is now sweeping the field among the younger intellectual leaders. The day of the prophetic Utopian vision, equally with the day of the Marxist imperative, appears to be over.

BARRIERS TO NEW COMPETITION

A Review Article

By R. B. HEFLEBOWER*

Conditions of entry into markets where sellers are few are analyzed intensively by Professor J. S. Bain in his *Barriers to New Competition.*[1] In the tightly written first chapter the theory of entry is developed far beyond what was previously in the literature. There emerges a series of hypotheses as to the conditions of entry, and the probable degree to which they serve as barriers to new competition. A bold attempt is then made to measure the height of these barriers in 20 manufacturing industries. Predictions stemming from these empirical findings are compared with observed performance of these industries. Finally, the conclusions with respect to the significance of types of entry barriers lead to a number of observations as to public policy.

All of this comprehensive analysis is carried out explicitly within the framework of comparative statics. Specifically excluded from the circumstances considered as having a significant effect on entry, and through that on the maximum level of the equilibrium price, are secular or cyclical [or episodic?] movements of demand, capacity or costs. Nor, except for a few notable cases of product innovation, does Bain believe that new sellers are able to alter the condition of entry. Instead, "It is definitely posited for purposes of the present study—on the basis of extensive empirical observation—that the condition of entry as defined and its ultimate determinants are usually stable and slowly changing through time . . ." (p. 18). Such stability is elsewhere said to exist "persistently . . . over a period of time." Repeatedly this or a similar phrase appears to emphasize that observation *ex post* can be tied conceptually to the *ex ante* long-term equilibrium.

Such stable and slowly changing conditions of entry are held to determine the ceiling price for an industry or the amount by which its price can, persistently, exceed the level ". . . hypothetically attributed to long-run equilibrium in pure competition" (p. 6). The actual persistent level of price may fall short of this entry-inviting level because of the nature of interfirm rivalry. The latter opens up the whole of oligopoly theory, but the author moves into that area only to indicate how the alternative solutions to interfirm rivalry would affect the price expectations of a would-be entrant.

Entry is marked off from other sources of capacity expansion by the require-

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[1] J. S. Bain, *Barriers to New Competition: Their Character and Consequences in Manufacturing Industries* (Cambridge: Harvard University Press. 1956. Pp. xi, 329. $5.50).

ment of ". . . the establishment of an independent legal entity, new to the industry . . . and the concurrent building or introduction by the new firm of physical production capacity that was not used for production in the industry prior to the establishment of the new firm" (p. 5). What is not clear is whether the *establishment* of an independent legal entity requires that the entrant be a new enterprise or whether the words "new to the industry" are meant to include as an entrant the established firm that moves into what is to it a new industry. On the basis of the way in which barriers to entry are appraised in the later empirical investigation, it appears that the author intends to follow the usual practice in price theory in this regard. This is to ignore entry by firms established in other industries or to assume that such firms have no advantages as entrants.

Similarly, each of Bain's three categories of conditions of entry is developed as far as possible as the net effect of the shape, or the level, of the cost or revenue functions identified in price theory. At a few points, chiefly in dealing with some aspects of product-differentiation and absolute-cost influences on entry, barriers are explored which are rooted in the actual organization of the industry or which reflect imperfections of factor markets. His three categories of conditions of entry are as follows:

1. The economies of plant and firm size (whether the advantages of scale are social or pecuniary makes no difference) is a two-pronged condition of entry. If a suboptimal plant or firm would have a significant cost disadvantage, entry by such sellers might occur but that fact would not force the price to the competitive level. That could be done only by an entrant of optimal size, but then the second aspect of this condition of entry would come into play. The higher the percentage of the industry's capacity which a firm of "minimum optimal scale" must have, the larger the percentage addition to total output the entrant would supply. This, in turn, would have a greater effect on the postentry prices that could be expected and hence on the degree to which entry would be attractive. Just what the new equilibrium would be the entrant could not foresee precisely, but the author considers several alternatives.

2. In the search for an identifiable function by which to judge the degree to which buyers' preferences for the products of established sellers enable the latter ". . . to elevate price above a competitive level while forestalling entry" (p. 15), the author debates whether there are economies of scale in sales promotion. At one point he says that ". . . there is substantial doubt that in any industry a uniformly applicable and unique selling cost-sales volume relationship exists . . ." (p. 67). This follows the statement that ". . . the essential phenomenon may be recognized simply as one of product-differentiation advantages of some firms over others, basically unconnected with scale." In the end, the height of the product-differentiation barrier is judged as an existing fact, without being explained by a function of any sort, but modified in a few cases by evidence of economies of scale in sales promotion.

3. Some, but not all, of the absolute cost advantages are stated in the form of volume-cost or volume-price functions or are derived from them. The possibility that an entrant's addition to the demand for a factor might raise its

price is considered. The capital-requirements barrier is in large part a function of the size of enterprise made necessary by the economies of scale in production or sales promotion. Added, however, is the capital necessary to offset the insulated product differentiation position of established firms in some cases, or of their superior access to raw materials.

The significance of each of these categories of barriers to entry is then examined empirically in 20 manufacturing industries. Information as to the height of the various entry barriers has been obtained from a variety of sources, but chief reliance is placed on questions asked of businessmen. Judgment is required to derive meaning from inadequate evidence, or to decide when no estimate is possible. (Examples of the questionnaires together with supporting materials supplementing the analysis in the main body of the text are provided in appendices which make up about a third of the volume.) With the exception of the "percentage effect" (or the per cent of the industry's volume an entrant of minimal optimal scale would add), the height of entry barriers is described by such terms as low, moderate, or high.

1. Conclusions as to the economies of scale in production and distribution are based on estimates of the shape of the long-run cost curve of plant and firm. Such curves refer to an ". . . independently defined standard of cost and not necessarily to the actual costs of firms established in the industry" (p. 7). The object is the level of cost corresponding to that in long-run equilibrium in pure competition adjusted (upward) for repetitive deviations from optimal rate of utilization. For that reason "engineering estimates" were sought for plants of different scales and designed to provide an acceptable degree of flexibility. From such estimates both the minimum size which would have lowest unit cost and the degree of disadvantage of suboptimal plant are derived. Added are estimates of savings in cost, including cost of ". . . performing certain functions of physical distribution" (p. 64), traceable to multiplant ownership.

On the basis of these estimates, the 16 industries for which satisfactory data were obtained are classified as follows: (a) In 3 industries economy-of-scale barriers are denoted as "very important"; (b) in 7 as "moderately important"; and (c) in another 6 as "unimportant." The ranking given each industry is shown in the first column of Table I. Lack of data prevented classifying four industries.

2. Product-differentiation disadvantages of entrants are examined both for an entrant of the size of a "minimum optimum plant" and for larger firms where distinct advantages of scale in sales promotion are found. On the first of these bases the established firms' product-differentiation advantage in 6 industries (or subdivisions of industries) is judged to be "great." Seven industries are placed in the "moderate" product-advantage group. In 11 industries this barrier is judged to be "slight." Consideration of the effects of economies of scale in sales promotion (often associated with multiplant ownership) does not lead to the reclassification of any industry but does augment the steepness of the barrier for those for which it is already apparent as "great." After separating tractors from the large and complex farm machinery industry and placing both in the high barrier class, the ranking of industries as shown

TABLE I.—SUMMARY OF RELATIVE HEIGHTS OF SPECIFIC AND AGGREGATE ENTRY BARRIERS IN 20 INDUSTRIES PLUS SOME SUBDIVISIONS OF INDUSTRIES[a]
(Higher numbers denote higher entry barriers.)

Industry or Subdivision	Scale Economy Barrier	Product-Differentiation Barrier	Absolute Cost Barrier	Capital Requirement Barrier	Aggregate Barrier
Automobiles	III	III	I	III	III
Canned Goods					
Specialties	I	II	I	I	I
Standard		I			
Cement	II[b]	I	I	II	I
Cigarettes	I	III	I	III	III
Copper	n.a.	I	III	n.a.	III
Farm Machinery					
Large and complex	II	III	I	n.a.	III
Simple implements		I			I
Flour					
Consumer sale	I[b]	II	I	ϕ	I
Industrial sale		I			
Fountain Pens					
High-priced	n.a.	III	I	I	III
Low-priced		I			I
Gypsum Products	n.a.[b]	I	III	I	I[c]
Liquor	I	III	I	II	III
Meat Packing	I[b]	I	I	ϕ or I	I
Metal containers	n.a.[b]	II	I	I	I[c]
Petroleum refining	II[b]	II	I	III	II
Rayon	II	I	I	II	I
Shoes					
Men's high-priced	II	II	I	ϕ	II
Women and men's low-priced		I			I
Soap	II	II	I	II	III
Steel	II[b]	I	III	III	II
Tires and Tubes	I	II	I	II	I
Tractors	III	III	I	III	III
Typewriters	III	III	I	n.a.	III

[a] Adapted from Bain's Tables XIV and XV particularly by use of subindustry estimates of certain barriers stated in Table XI and on pages 179–80. This material is reproduced with the permission of Harvard University Press.
[b] Regional markets considered important.
[c] Refers to period since 1950. Before that date would have been rated as II.

in the second column of Table I is derived. (The author also appraises the composite effects of scale in production and in sales promotion and finds that the latter sharply reinforces the former for the automobile, typewriter, tractor, petroleum refining and high-priced fountain pen industries.)

3. Absolute cost barriers are found to involve access to raw materials or

know-how in only 3 industries, but the capital required for an optimal size plant or firm is more widely significant. Funds needed by an entrant of minimum optimal size are found to be "important" for 5 industries, "moderately important" for 5, and "slight" or even less so in 7 cases. The latter are given the rank of I, or even lower as shown by Φ, in the third and fourth columns of the table where the author's judgment as to the significance of these barriers for each industry is given.

Finally, the height of the aggregate barriers to entry was estimated, but not by a simple averaging process, for the author adds his judgment as to the significance of particular types of barriers for individual industries. Six industries are placed in the "high entry barrier" category, an equal number in the "substantial entry barrier" group and 11 are deemed to have "moderate to low entry barriers." (The total exceeds 20 because separate estimates were made for subcategories of 3 industries.) Later the author moves the copper, the soap, and the large, complex farm machinery industries from the middle group, into the high-entry barrier class largely on the basis of existing concentration and of the time period required for an entrant's effects on the level of price to be significant. The final rating of industries is shown in the last column of Table I.

The estimates of the conditions of entry which Bain presents are of great value if used as he intends. Doubtless the author will be embarrassed at times by quotation of his estimates for a particular industry, stripped of his careful statement of procedures and of the limits of his data. Even with attention to these qualifications, persons familiar with various industries will have doubts about particular estimates. Greater emphasis should be placed on the relative importance of various types of barriers as found in the empirical investigation. Product differentiation and absolute cost barriers (capital requirements fairly widely and other specific cost barriers in a few cases) stand out as the most significant ones. Economies of scale appear less important, but when reinforced by either product differentiation or absolute cost barriers, or both, the industry is thrown in the category where "forestalled entry" is a "major possibility."

The last step in the empirical investigation is the comparison of expected performance with that observed. There appears to be ". . . no general or chronic deficiency in scale of plant . . ." (p. 184) or of firms. On the other hand, ". . . the existing degree of concentration by the largest 4 firms lacks a clear cost justification in perhaps 12 of 20 cases" (p. 113) but is made possible by absence of diseconomies of firm size. Persistent excess capacity, where found, does not correlate clearly with height of entry barriers. Turning to the profit test on which the author places major reliance, industries with "high entry barriers" are found to have had higher profits as a percentage of owner's equity than industries into which entry is easier.[2] But no significant difference

[2] Bain appears to be willing to rely on profits from orthodox accounting statements, rather than the complicated concepts of earnings and investment which he had earlier proposed, because of his finding of a lack of persistent excess capacity in the industries studied. See J. S. Bain, "The Profit Scale as a Measure of Monopoly Power," *Quart. Jour. Econ.*,

is found between the earning rate of industries with substantial entry barriers and that of those with low barriers.

Bain finds that more accurate predictions of profits rates can be made when concentration is introduced as an added independent variable. Within the "substantial" and "moderate to low" entry-barrier categories, there is a distinct correlation between degree of concentration in various industries and their profit rates. Furthermore, some industries in these categories have concentration ratios similar to, but profit rates lower than, those of industries in the "very high" entry barrier group. Thus both information on concentration and on difficulty of entry appear to be necessary in order to predict profit rates in the industries studied.

Using both of these variables for predicting profit rates might appear to the reader to be double counting. In a static model one would expect the size distribution of companies to be determined by the conditions of entry. But the existing size distribution of companies for many industries departs substantially from that which would exist if each seller were of minimum optimal size. In most industries there are many more sellers of suboptimal scale (as Bain measures optimal size) than one would expect from his estimates of the cost disadvantage of these smaller sellers. On the other hand, in many industries large sellers account for a much higher percentage of volume than they would if none was above minimum optimal size.

Bain does not find an adequate explanation for the small-seller . . . "fringes [which] appear to persist over time" (p. 185). Study of the cases does not show that they are ". . . supplying small 'pockets' in the market . . ." (p. 185) nor is there a "clear or convincing association of size of the inefficient fringe to any of these [entry-affecting] structural variables" (p. 186). The reviewer will suggest below that the explanation may lie in Bain's overestimation of the disadvantage of small size.

On the other hand, Bain's conclusions at another point do explain how concentration of output in a few large firms is possible. Contrary to the notion, implicit in the usual U-shaped long-run cost curve, that very large firms experience diseconomies of size, Bain does not find empirical evidence of such diseconomies either in the literature or in his own research. Therefore, large firm size, which is reflected in concentration figures, can be independent of the conditions affecting entry.

Turning to the final step, that of policy implications, Bain compares what can be deduced from a priori analysis with what follows from his empirical findings. He acknowledges that he made ". . . an initially excessive estimate of the probable relative importance of absolute cost barriers other than those involving capital requirements" (p. 207). But the expectation, based on a priori analysis, that ". . . the main culprit in establishing excessive or very high barriers to entry would appear to be product differentiation" (p. 204) is substantiated by the empirical study.

Feb. 1941, LV, 271-93. For a discussion of the limitations of this measure of monopoly see J. P. Miller, "Measures of Monopoly Power and Concentration: Their Economic Significance" in G. J. Stigler, editor, *Business Concentration and Price Policy* (Princeton, 1955), pp. 127-29.

Economies of scale in production and distribution are treated more kindly. While, according to the author, deconcentration moves may be required where scale advantages reflect pecuniary advantages only, "That economies of scale in production and distribution do not loom large as the basis of barriers to entry is fortunate for the policy-maker, because there is relatively little that can or should be done about them. In general, they establish entry barriers which we have to accept in order to get efficiency" (p. 212). Similar acceptance is not given to sales promotional advantages of scale nor other sources of product differentiation advantage, particularly that involving integration forward into distribution. These, along with some cases of backward integration, indicate that ". . . the bases of strictly pecuniary economies of scale might be likely candidates for attack" (p. 207).

As one looks back over this large and carefully planned and executed undertaking, he is impressed with the methodological precision, the astute theorizing, and the careful workmanship. On first reading there appear to be points on which the author seems to have erred in either failing to adhere to his theoretical framework or in unduly stretching that framework so that observations can come under it. But further study, and this book calls for careful examination, nearly always shows that the author does not stray, or that he does fill the gaps or indicates that he cannot support a definite conclusion.

But there is one major step which is open to question. This is the use of the engineers' estimates of the average costs of plants of different scales. Is the level of costs which an entrant has to meet as low as the "minimum optimum scale" estimated in this way? Or are established firms' plants persistently less efficient—are their costs higher than those estimated by engineers for plants built to optimum scale *de novo?* Clearly this is an empirical matter. There are reasons to expect, however, that in many industries a new firm with a newly built plant would not have to enter on a scale as large as that estimated by Bain's techniques.

Where the new firm does not have to meet the costs of an optimum-scale plant built *de novo*, it is because the established firms in the industry do not in fact meet them. Established plants of large scale, even those as large as Bain's minimum optimal scale, often have achieved their current capacity by a series of additions. As a result, the various components of the productive processes are likely to be of smaller size and the whole less efficiently integrated than would be true had the plant been built at one time using the most efficient technology of today. This is quite a different view of the efficiency of existing plants from that in Bain's assumptions (for which no empirical evidence is presented) that plants larger than his estimate of minimum optimal size ". . . frequently represent a duplication of optimal-scale facilities on a single site" (p. 73). Smaller plants, although perhaps not the smallest, also portray their history in the cost structures. While plant-rebuilding doubtlessly tends to correct such inefficiencies gradually, it seems that further growth and changes in techniques delay quite persistently the attainment of costs as low as those which would be estimated by Bain's method. It is not surprising, for example, in view of these considerations, that several petroleum refineries have been or are now being constructed, located as Bain specifies, but with a capa-

city of about one-fourth of his estimated efficient size of 120,000 barrels per day. This fact should be compared with Bain's estimate (p. 80) that plants of the scale of those being built would experience a cost disadvantage of 5 per cent. That is a substantial barrier but does not tell the whole story. If the would-be entrant buys raw materials at the same price as does a larger rival he would have to offset his disadvantage of 5 per cent of price solely by being able to effect savings in his operating costs. When one realizes that the refining margin is only about 25 per cent of value of products at the refinery gate, the 5 per cent disadvantage in total cost becomes one-fifth of this gross margin.

To the extent that what is suggested in the preceding paragraph is pertinent to the level of costs an entrant must meet, the minimum optimal scale is below that estimated by Bain. In other words, the actual long-run cost curve of the firm which could successfully enter the industry would be higher and less steeply sloped than that derived from engineers' estimates. As a consequence the capital requirement barrier, and the influence of the entrant's volume on selling prices, would be less serious. Entrants well below the size of Bain's minimum optimal scale could succeed. Indeed, this possibility may explain cases of persistent survival of the fringe of small sellers which are suboptimal by Bain's standard, an observed fact that bothers him.

The point just made has to do with one phase of the analysis which falls within the framework laid out by the author, but more important questions arise as to the adequacy of the framework itself. Can barriers to new competition be analyzed adequately by reference solely or perhaps even primarily to "stable and slowly changing" structural conditions which determine whether *new enterprises* can enter an industry?

Had the author had unique success in prediction, this question might not arise. But on the basis of his estimates of conditions of entry alone he was able to predict performance only for the high-barrier category. There is no suggestion that performance not explained by his model and his estimates of the height of barriers to entry in various industries may stem from aspects of entry he has excluded. There are two such categories of entry: that by firms already established in other industries; and by either new or old firms which might be induced to enter because of disequilibria between prospective costs and prospective revenue traceable to innovations or less dramatic developments.

Movement by established firms in one industry or market into another cannot be brushed aside. Certainly it was implicit in Schumpeter's casual empiricism,[3] and Harrod assigns to such entry a major role in his attempt at reconstructing imperfect competition theory.[4] Day-to-day observation provides illustrations of such entry, and businessmen point to these cases as evidence of the vigor of competition. Clearly barriers to entry must look different, lower in most cases, to a well-established enterprise considering a move into a new industry or market. Problems of capital requirements, of funds necessary to ride out an initial period of low volume or of losses, of managerial personnel,

[3] J. A. Schumpeter, *Capitalism, Socialism and Democracy* (New York, 1942), pp. 81 ff.

[4] R. F. Harrod, *Economic Essays* (New York, 1952) p. 144. See also references cited by H. H. Hines, "Effectiveness of 'Entry' by Already Established Firms," *Quart. Jour. Econ.*, Feb. 1957, LXX, 132, n. 2.

and quite likely the difficulty of product differentiation, would appear less serious. Whether, in contrast to Bain's stand, disequilibria do significantly alter barriers to new competition is an open question. As was noted above, he has not provided a convincing answer. Schumpeter's emphasis on dynamic disequilibria is well known. Joan Robinson, in commenting on an earlier paper by Bain, stated that ". . . static economic models did not go far, or at least far enough, in solving the real questions connected with the conditions of entry."[5] Businessmen stress entry opportunities brought about by disequilibria.[6]

Including these two aspects of entry would have expanded Bain's undertaking far beyond the added fact-gathering required, for new theoretical and methodological issues would have arisen. There is no reason to assume that firms established in one industry that move into another would conduct themselves there as would a completely new enterprise. The consequences of such entry, whether viewed as part of the entrant's expectations or as the performance record of the industry, are not easily deduced in the present state of oligopoly theory.[7]

Then if entry induced by disequilibria were found to be significant, the further question is whether repeated disequilibria can be counted on to so reshape the industry structures that performance approaching the competitive can be counted on. Schumpeter thought so, at least as long as capitalism survives. But if that dynamism were lost, neither he, nor the logic of reliance on such a source of entry, would lead one to expect that the market system would work well. Rarely do economists broaden their analysis so as to handle predictions with respect to such social developments.

These last two points suggest that unless further evidence is found than that adduced by Bain, one must conclude that he has dealt with only part of the barriers to new competition in industries where sellers are few. He used the traditional framework, that of comparative statics. It is the one to be preferred so long as it provides the needed answers, not only because it is easier to use, but also because it ties in so well with the carefully developed body of neoclassical theory. But if adequate predictions are not possible, the economists cannot stop there.

The questions just considered have to do with the scope of the entry problem, and are not meant as an assessment of what Bain has done. There can be no doubt but that the narrower task he undertook is the first and fundamental one. As executed, it is a superb example of research design and procedure. This fact, together with the development of entry theory it provides and the added insight it gives into conditions of entry in American manufacturing, makes this book the most significant contribution to this phase of economics in many years.

[5] "Summary Record of the Debate," in E. H. Chamberlin, editor, *Monopoly and Competition and Their Regulation* (London and New York, 1955) p. 503.

[6] For example, "Before entering a new market, Carbide has always sought some clear edge in either raw-material supply or production process. Lacking such an edge, it hesitates to launch products that might seem to complement perfectly the company's existing lines." *Fortune*, Feb. 1957, p. 126.

[7] Hines, *op. cit.*, pp. 137-43 and 149-50.

COMMUNICATIONS

Personal Discrimination in Transportation: A European Technique

Following the restrictive phase of transportation regulation induced by the depression,[1] with its limitations on entry and on competitive pricing, the interest in transport regulation has now swung somewhat in the other direction. This shift is conservatively exemplified in the so-called Weeks Report,[2] which has been reviewed here[3] and elsewhere and which has been the subject of a large advertising program on the part of the Association of American Railroads.

It is not the purpose of this paper to examine the proposals of that Report, but to indicate how some of the same problems have been handled in other countries. For the problem raised by new technologies in transport, upsetting the old railway monopoly, is almost universal. While technological progress in the United States has been outstanding, our institutions have maintained an ambivalent attitude. Some continental countries have shown flexibility in adapting their attitudes and institutions to the changed situation. European practice may contain useful lessons for Americans.

The standard solution to the problem of growing competition which new technologies present to traditional transport, adopted in the United States and many other countries, has been to impose restrictive handicaps on the new technologies. In the United States, the certificate of public convenience and necessity has been used to restrict the entry of new management into transportation. Probably the most dramatic example of entry restriction is in air transportation. Despite the growth of air transportation from the passage of the Civil Aeronautics Act in 1938 until 1955, not a single new company was allowed to enter the industry on a permanent basis. The Civil Aeronautics Board awarded temporary certificates to a number of new managements and the pioneer managements have been permitted very substantially to expand their operations, but it took an act of Congress[4] for newcomers to achieve permanent status. The requirement of the certificate does not necessarily prevent growth, but it does favor pioneer management and may stifle new or experimental ideas.

[1] Intercoastal Shipping Act, 1933; Interstate Commerce Act, Pt. II, 1935; Civil Aeronautics Act, 1938; Interstate Commerce Act, Pt. III, 1940; Interstate Commerce Act, Pt. IV, 1942; Interstate Commerce Act, Pt. I, Sec. 5a, 1948. The last two are essentially a product of the momentum of the '30s.

[2] *Revision of Federal Transportation Policy.* A Report to the President, prepared by the Presidential Advisory Committee on Transport Policy and Organization. (Washington, 1955.)

[3] J. C. Nelson, "Revision of National Transport Regulatory Policy," *Am. Econ. Rev.*, Dec. 1955, XLV, 910-18.

[4] Civil Aeronautics Act, Sec. 401 (e) (3); 69 Stat. 49.

Prewar European solutions to the problem were generally along the same lines as in the United States. But the effect of the war was to intensify highway competition. This was because, at the end of the war, continental railroads were largely out of commission, and in the universal shortage of transportation the trucks filled a great need. When the railroads were rehabilitated, it was politically difficult to throw into the discard those carriers that had provided transportation at the hour of greatest need. At present, restrictive solutions are being revived in some countries, such as Germany. But other countries, among them Holland, France, Switzerland, Italy, Portugal, and the United Kingdom, have turned increasingly to a more flexible pricing system for transport—not only for railroads, but often for all technologies. But flexibility benefits the rails more than the others because their position has been the most rigid.

The most common form by which the railways of these several European countries have been granted greater freedom is by permitting the use of secret contract rates. This is a step beyond the well-known British and Canadian system of contracts known as "agreed charges." In Canada, for example, notice of those contracts is published in the *Canada Gazette;* they receive public hearing and approval before the Board of Transport Commissioners; and the approved contracts are open to public inspection at the stations.[5] There is no element of secrecy.

The general pattern of the European secret contract rate system permits the carriers to offer reductions to individual shippers if the carriers' financial position will be thereby improved. The reductions must be communicated to the ministry of transport, which retains the right to disapprove them, and the openly published rates continue as maxima. In the most common form of the system, the shipper is required to provide a certain volume of traffic, and to sign a pledge of fidelity. A reduction of x per cent is usually made from the published rate, although sometimes a contract rate may be unrelated to the published rate.

No two countries have identical systems, although the contract of fidelity is a usual component. Fidelity may be no more than the obligation to ship a minimum tonnage; or sometimes all shipments over a certain distance must be carried by rail, or possibly a percentage of all such shipments. A Swiss variant often requires that the shipper not increase his utilization of motor trucks, nor add to his own private park of motor vehicles, nor utilize his own motor vehicles as contract carriers or otherwise engage in competition with the railways. Only in Italy, where the railroads have been least successful in maintaining their position,[6] have shippers forced the abandonment of the fidelity clause.

[5] A. W. Currie, *Economics of Canadian Transportation* (Toronto, 1954), pp. 224-31; Gilbert Walker, *Road and Rail* (London, 1947), p. 86; G. L. Wilson, *New Departures in Freight Rate Making* (New York, 1948).

[6] Railroad traffic now is the same as before the war; trucks carried the equivalent of a quarter of the rail traffic then; now they carry almost double. Bottlenecks have developed on the Italian railways, so that they operate at capacity in some relationships. Presumably investment is insufficient, especially in the South.

Although the contract rate system has grown since the war, it had its beginnings considerably earlier as a technique for meeting highway and water competition. The secret contract rate system appears to have begun in Switzerland in 1927.[7] The usefulness of these original secret contract provisions to the railroads was limited by the legal requirement that no advantage could be accorded to one shipper, in any form whatsoever, without that advantage being accessible to all shippers in the same conditions. What constitutes the "same conditions" is not always explicitly stated in the regulations. Two shippers are often considered to be in the same condition if they offer the same goods for transport between the same stations; identical tonnages may also be required.

Similar to the Canadian agreed charges, Dutch contracts, which antedated the first world war, were published and the railroad was obliged to extend the contract rates to all shippers in the same conditions. The Dutch dropped the requirement of publication and of uniformity of treatment to all shippers in 1934. In Switzerland, however, that latter requirement remains to plague the commercial direction of the railroads. When the Swiss railroads wish to meet special competitive conditions without extending those reductions to all, management is obliged to seek that portion of the shipper's transportation business that is unique, and to apply the reduction there.

In both France and Italy there exist, side by side, a formal published class-tariff, the special rates published and available to all, and the secret and unpublished contracts. In France this latter form of rate-making was adopted only in 1952, after rather considerable debate. At last reports, something like 100 contracts have been made by the French railways, but apparently a good many more are in process.

The wording of the Italian law is almost identical with the Swiss, but the concept of shippers in the "same conditions" is much more narrowly interpreted. In Italy, the "identity" must extend to the shippers' whole traffic pattern, including stations of origin and destination and annual quantity moved. It is practically impossible for two shippers to find themselves in the "same conditions" so interpreted.

The secret rate contracts, which represent the essential difference between European and American railroad rate-making, supplement rather than supplant the classical rate system. Thus, the classical rate system, with its commodity classification, a scale of class rates between each pair of stations, very often based on a distance scale, together with other openly published commodity rates and exceptional rates, constitutes a system of maximum charges. As in the United States, no one pays more than these published rates. The distinction lies in the possibility that some shippers in good bargaining positions pay less than the published rates.

Where deferred rebates are used, the system is not unlike the ocean shipping conference system.[8] That is, shippers pay the full published rate, the

[7] The Swiss system is fully decribed in A. Paillard, *Les tarifs de chemin de fer en matière de marchandises* (Lausanne, 1945), esp. pp. 198-230.

[8] Carefully described in D. Marx, Jr., *International Shipping Cartels* (Princeton, 1953), esp. pp. 201ff.

carriers maintain an accounting of the rebate which is due the shipper, holding that rebate for a year or some such time period, and then refunding it to the shipper if he has lived up to his commitments of fidelity. Thus, any saving which might accrue to a shipper by using a truck is likely to be much more than offset by the loss of the rebate which the railroad is withholding. Ministerial control consists of the requirement of advance reporting of the proposed contract to the appropriate ministry. In some countries it is reported that in no case has the ministry ever disapproved a proposed contract; in others, the ministry has participated actively.

The precise form taken by the rate reduction is extremely variable. The most common form is a percentage discount from the standard published rate. That reduction is sometimes granted by the railway agent at time of shipment, but more commonly is accounted for in the railway general office. The latter technique both preserves secrecy and permits the retroactive adjustment in the form of deferred rebates. The carriers are, however, usually free to make their contracts in whatever form seems most convenient to get the business and to maximize the carriers' returns.

Carrier management seems to make a real effort to use the contracts only for competitive traffic. That may mean only contract reductions on certain commodities, only to or from certain stations, or only at certain periods of the year. Sliding scales of discount according to the quantity shipped are also quite commonly used. The *abonnement* is sometimes used; that is, a flat charge per ton or per package for an individual shipper, regardless of other variables. Such *abonnements* are tailored to order for the particular contract involved, and have been preceded by a detailed study of the whole transportation situation of the shipper. The advantage of the *abonnement* is that it saves a great deal of accounting work for both shipper and carrier.

There is, of course, no unified "market for transportation" for a country as a whole. Under the legally permissible axes of discrimination in the United States, there is a separate transportation market for each commodity from each station to every other station. But while they are separate markets, they are far from independent. Interdependence is usually very strong, especially geographically, for a particular commodity. At a point of consumption, it is often easy to substitute the product from one origin for the same product from another origin. Adjacent stations are likely to be rather close substitutes, one for another, if transshipment and drayage are at all possible. Between commodities, as contrasted with distances, the ranges of possibility for substitution are fewer and hence the interdependence of the transportation markets along the commodity axis is more limited.

From the classical oyster car example[9] through the more formal development of price theory[10] it has been clear that discriminatory pricing usually serves to increase output. The secret contract rate system permits, through the introduction of personal discrimination, a much greater subdivision of the market than is possible with open published rates.

[9] A. T. Hadley, *Railroad Transportation* (New York, 1890), pp. 116-18.

[10] *E.g.*, J. Robinson, *Economics of Imperfect Competition* (London, 1933), pp. 181-202.

By making individual contracts with each shipper, assuming proper cost analysis, the carrier is able to obtain all traffic willing to pay more than marginal cost. When, as is the European practice, the secret contract rate system is coupled with a classical open and published rate system as a maximum, then shippers who stand at the top of the demand schedule are protected, at least nominally, against exploitation by the carrier. But they do not receive contracts, having shown in their bargaining that they are unable to avail themselves of better alternatives. It is the lower-rate shippers, those only willing to pay less than the published rate, who succeed in obtaining special contracts. If the contracts are wisely negotiated, the carrier is better off than with a uniform price, since it has the traffic which it would not otherwise have had, but without the sacrifice of revenue on the high-rated traffic which it would have had anyway; and the shipper at the top of the schedule is no worse off than he would be if no contract system existed.

The secret of success in the operation of an unpublished contract system is shrewd bargaining on the part of the carrier. For this purpose it is necessary that the carrier know the demand schedule of the shipper; *i.e.*, he must know the shipper's alternatives. The carrier must also have a working knowledge of the way in which his own costs fluctuate with the volume of traffic.

European railway managements work hard in both these directions. It is not, of course, very difficult to estimate the cost of operating trucks. The capital cost of a truck, its life expectancy, tax rates, and fuel bills are all matters of fairly open public knowledge. If the trucker employs hired drivers, those wage rates are also subject to a close estimate by the railway management. It is only when trucks are owner-operated that it becomes difficult to estimate the wage bill: it is always possible that owner-operators may in fact be exploiting themselves.

The European railways use several techniques for the finding of their own marginal cost. Those methods usually yield a long-run average value. One technique is a version of the time-honored statistical technique of scatter diagrams for the purpose of finding average incremental cost. Also, where necessary, the carriers may make specialized and individual surveys by which cost is built up from the specific conditions presented, essentially by standard costing.

Since railroads produce very diverse products, at best both passenger miles and ton miles to take even the crudest common denominators, a problem arises immediately in the definition of quantity.[11] That has sometimes been solved by the weighting of passenger miles and ton miles according to their relative values (prices) and then adding them together.[12] Alternatively, if freight service alone is measured along the quantity axis, total costs may be defined merely as total cost of the freight service, in which case there may have been

[11] One of the best European discussions appears in R. Hutter, "La Théorie économique et la gestion commerciale des chemins de fer," *Rev. gén. des chemins de fer*, Feb. 1950, p. 55.

[12] Thor Hultgren, *American Transportation in Prosperity and Depression* (New York, 1948), pp. 73-79.

an arbitrary division of the common costs.[13] For example, maintenance of way and roadbed costs may be divided between freight and passenger service in proportion to the gross ton miles of trains in each class of service. It is clear that there is a degree of estimate introduced into the cost-finding technique which may be substantial. In inflationary periods, adjustment of costs to some constant price level represents an additional problem.

When the axes have been defined to the satisfaction of management, cost and output data from successive accounting periods are plotted on the diagram, each accounting period representing one observation. When an appropriate number of observations have been plotted on the diagram, a line of average fit is drawn through them. That fit is often drawn as a straight line, but it need not necessarily be so. The line may then be extrapolated downward to the point at which it intersects the vertical axis, corresponding to an output of zero, but with the enterprise in a standby condition. The value there indicated represents the fixed costs; that is, those costs which would continue even if the industry had no output but held itself in a position of readiness to produce. The slope of the line represents the marginal cost, that is, it represents the average rate of increase of cost with increase in quantity.[14] As the very roughest first approximation this cost per ton mile, which represents a long- (or longish-) run average marginal cost, can be used as a floor in the bargaining process on contracts.

The European railways (and possibly the American too) lean toward an overstatement of marginal costs. That is, the carriers typically use, for current pricing purposes, the concept of long-run average marginal cost rather than the incremental costs of the moment. The carriers admit that in practice increments in traffic can be absorbed by the existing installations, but in the long run if the traffic remained at the new and higher level, then the facilities of transportation would be adapted to that new level.[15] Thus marginal-cost analysis for rate-making purposes usually begins from an hypothesis of full employment for personnel and rolling stock. If the commercial management of the railroad requests cost estimates as a necessary background to the bargaining process, the accounting office may make its cost schedule under the assumption that not only will additional personnel have to be employed, but that additional rolling stock and motive power must be purchased. It follows that costs will usually be overstated since full employment is a special, rather than a general, case.

Moreover, and unfortunately to an even greater extent than in the United States, European railway managements are fascinated in their cost analyses

[13] *E.g.*, M. Fioc, "Le calcul des prix de Revient à la S.N.C.F.," (Centre National de la Recherche Scientifique, Séminaire d'économetrie, June 15, 1954, mimeo.).

[14] This is the method used by the United States Steel Corporation, *T.N.E.C. Papers* (New York, 1940), Vol. I, pp. 254-55. But the user of this method must beware of circularity resulting from the weighting of the various products of a multiproduct firm. Moreover, the accountants' decision to classify certain expenses as functions of time or use (*e.g.*, depreciation) will have an important effect on the slope of the line, as may the length of the accounting period.

[15] Fioc, *op. cit.*, p. 12.

by the element of distance. The importance of other dimensions of cost, such as time, or the return movement of motive power and rolling stock, may be underevaluated.

When large blocks of traffic are involved, some railway administrations make individual field surveys, analyzing precisely what additional expenses will be necessary and what can be absorbed by the existing personnel and facilities. In such situations the estimates of marginal cost are likely to be much more useful in pricing than when based on arbitrary theories.[16]

The attitude of European shippers toward the unpublished contract rates is not uniform, but seems to be generally favorable. In the Netherlands, for example, where the greater part of the freight traffic is transported on contract, shippers seem pleased with the system. In the prerailway era, the Netherlands had built an extensive canal system. Unlike the United States or England, where the advent of the railway resulted in wholesale abandonment of the canals, investment in Dutch canals continues to this day. Thus Dutch railways never enjoyed the monopoly that rails elsewhere often did in the prehighway period. Even now, the Dutch railways carry only about 30 percent of the ton-miles in their country. Shippers and carriers are thus in roughly equal positions in the process of bargaining for a contract, since the shipper has ample alternatives in both truck and barge transport. Moreover, the railways seem to have succeeded in closely adapting the terms and conditions of the contract to the individual circumstances of the shipper concerned. It is intended that the shipper feel that he has been treated in a special and personal way. Perhaps because of that, the secrecy of the contracts seems to be well preserved, and the rates do not seem to be discussed among the shippers.

In Switzerland the railway management believes that there is not much secrecy of the contract rates even when special rates are provided. Swiss rates are usually on a formal distance scale, and a uniform discount, a function of the annual tonnage shipped, is made available to all who execute the contract. Railway management believes it would be impossible to maintain real secrecy in any case. Business operations in Latin countries generally are carried on under a tradition of secrecy; and there seems to be pretty effective secrecy of contract rates in France and Italy.

Despite the increasing use of contract rates by European carriers, the system does present certain dangers. Truck and barge operators will obviously object to increased flexibility for their competitors. But more importantly, such a system runs counter to some of our established ideas of rate-making. It does, in its extreme version, permit the carrier to treat differently two shippers whose positions are identical in every respect except their bargaining ability. In its more limited form, as in Switzerland or Italy, it still permits carriers to give shippers the advantage of their location. Shippers with access to competitive transport technologies are treated better by European railways than those

[16] But sometimes even such analyses may actually be standard costs, even though denominated "marginal." *E.g.*, S.N.C.F., Aménagement de la Moselle, "Relation Pompey-Hagondange, prix de revient marginal de transport de produits sidérurgiques par train complet" (mimeo., Dec. 1952).

without such alternatives. However, that may well be the case also in the United States, despite the rather general prohibition, contained in the Interstate Commerce Act, of discrimination against persons, localities, ports, and the like. But, in the United States, it is difficult to conceive of locations lacking access to highway transport. If so, then there are no badly located shippers for this purpose.

One danger reflects on railway management itself. Management might not be intelligent about the granting of contract reductions. Especially, it might underestimate the shippers' willingness to pay, and give reductions unnecessarily. Or it might underestimate marginal cost, and hence offer rates below the incremental cost of handling the traffic.

Another risk is that if contract rates came into widespread use there might be less resistance to increases in the open tariff. Thus shippers in weak positions who rely on the open tariff for protection against the full impact of monopolistic discrimination might really lose most of that protection. Moreover, carriers and the commissions may see a certain symmetry between published and contract rates, so that contract reductions to some might be felt to imply increases in the published rate.[17] Again the protection offered the shipper by that published rate might disappear.

But the increasing availability of private carriage in this country, the truck especially but other technologies also, would seem to offer substantial protection to shippers against exploitation. An important difference between the American and European situations lies in the existence of state-ownership in Europe. There, interrailway competition is limited to international traffic, where there may well be strong competition for transit trade, as well as market competition. Independent railways are so few that competition between railways on internal traffic is almost unknown. In the United States, on the other hand, there is often substantial competition between railways, although rarely in price. One objection that has been raised to the application of European contracts in the American context has been that the American railroads would throw away revenue through interrailway competition. However, since joint railway rate-making has been legalized by the Reed-Bulwinkle bill, the rate bureaus authorized by that bill could become the instruments for contract negotiation. For example, unanimous consent of carrier members in the bureau might be required as a prerequisite to the adoption of any contract. Since the rate bureaus in the United States under the Reed-Bulwinkle bill are largely organized according to technology, this would prevent the contracts from being used for intratechnological competitive purposes.

The secret contracts of the European railways do offer a very substantial number of advantages. Any adoption of a contract rate system would need to be coupled with the relaxation or abolition of entry controls, and, parallel to the European pattern, the contracts should be tested by the Commission against a standard of an improved financial situation. If there were a reversion to price competition, in the form of secret contract rates, in the place of

[17] European managements employ notions of symmetry in their revisions of the published tariffs. J. P. Carter, "The German Railways," *Land Econ.*, Nov. 1952, p. 314.

the present restrictive controls on entry in the form of the certificate of public convenience and necessity, then technological progress would not be stifled. Greater rate freedom for the carriers should be coupled with greater freedom of entry into the industry. Carriers would then be able to enter new fields to the extent that they could economically survive in those fields, instead of, as is the present technique, having to make an advance argument to government that their services are needed in the proposed fields. The usual criterion of economic need (that the business will be profitable) often cannot be demonstrated in advance, and would not necessarily be relevant to the proceedings, under the present philosophy, even if so demonstrated.

Another, and probably more important, advantage of contract rates is that they do not throttle the initiative of management of either new or old carriers. Railway management is free to go after the business as best it knows how. Fresh capital and initiative, if freed from the requirement of the certificate of public convenience and necessity, would be able to enter the transport business and to make out as best they could against the established carriers. The latter would also be able to protect their position, if it is economically justified, by making contracts through their rate bureaus. A provision would need to be made for the admission of newcomers to the rate bureaus, but the feasibility of such a provision has been demonstrated in the ocean shipping conference field.

More directly from a carrier's point of view there are a number of quite specific advantages. The contract rate system permits carriers to get revenue which they would not otherwise get. There might well be movements and revenues which would not occur at all with openly published tariffs. Carriers are likely, in any event, to obtain traffic and revenue which would otherwise go to competitive technologies of transport.

If the contracts are properly managed, the additional revenue will exceed the additional costs occasioned by the new traffic. A careful analysis of incremental costs is vital at this stage. Furthermore, it is important to realize that incremental cost is not constant over time. The cost analysis must be revised from time to time, perhaps annually, and the contracts revised, if necessary, accordingly. Unfortunately, carriers everywhere are overwhelmed by the importance of full average cost, and too deeply impressed with the distance factor.

A final advantage of the contract rate system is that it would restore to the carriers the responsibility for intelligent business management. Successful management would be rewarded by increased profits; on the other hand, unsuccessful management would no longer be able to escape responsibility through blaming the company's troubles on government regulation.

In fact, the European individual contract rate system is not so very different from the American commodity rate system. At a great many of our stations there will be only one shipper of each important item of traffic. Thus, for each, a specially tailored rate can be developed and published. But it is in publication that the difference between the American and European systems lies. When the rate is published, the competitors of shipper and carrier know it. But not all carriers are, in our system, subject to the same requirements of

publication. Some, such as truckers of agricultural products, or bulk water-carriers, are quite unhampered by regulation. The contract rate is one way of offering partial rate freedom to the regulated carrier, and may well be preferable to subjecting presently uncontrolled carriers to the rigidities of regulation.

Traffic managers in the United States may be hostile to any revision of the published rate system. Of 94 responses to a question of desirability of adopting even the published "agreed charge" of Canada in this country, 78 per cent were negative. Even those commenting favorably were still concerned with the avoidance of discrimination, preference, and prejudice.[18]

Certain proposals of the Weeks Report, especially the modification of the long- and short-haul clause, would be a step toward the greater discrimination allowed by contract rates. But it is difficult for a seller to discriminate if he must publicize his discrimination. A conservative and piecemeal revision of our transport policy, such as contemplated in the Weeks Report, should not be adopted without at least considering some of the more radical alternatives, of which the secret contract is one.

Secret contract rates would make transport pricing somewhat analogous to that of the new automobile market or the market for most industrial equipment and materials, in which a published list price serves as a maximum and almost every buyer receives a discount, secret and variable. "Chaotic" is the term of opprobrium applied to such markets, usually by sellers who find themselves undercut by their competitors. But it is no longer clear that transport is so monopolized that consumers need protection; nor is it clear that what are essentially price-maintenance agreements should be retained in the industry; nor that transportation is so unique an industry that the specialized pricing rules of half a century ago need to be continued.

J. P. CARTER*

[18] "Canadian 'Agreed Charge' Policy," *Railway Freight Traffic*, Aug. 1955, pp. 17-18.

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Share of Government in Gross National Product for Various Countries

The postwar years have seen an enormous amount of work put into the computation of national income and fiscal statistics in nearly all countries of the world. This, together with the results of the energetic efforts of international organizations toward standardization for intercountry comparisons makes possible a comparison of the share of governments in the gross product of nearly all the larger countries organized on a predominantly private-enterprise basis.

The total charges against gross national product at market prices are conceptually divisible into three shares after deducting depreciation: income from work, income from property (both items net of all payments to governments),

and government receipts. The third share, appropriately defined, comprises the share of government in gross national product at market prices.

National income aggregates are now increasingly worked out within a system of national accounts. The consolidated government account comprises one of the accounts in the system. In the tables below, for countries with national accounts, the share of government conceived as the sum of all taxes, income from government property, profits of government enterprises, and nontax receipts of all levels of government (less subsidies), has been estimated from the consolidated government account. For countries without a system of accounts, indirect methods have been employed. (See Appendix for these methods.) In so far as possible, the denominator used in computing the percentages shown in the tables was gross domestic product at market prices. For other purposes, some other aggregate—gross national product, total available product or even national income—may be suitable as a denominator. The choice of gross *domestic* product (in contradistinction to gross national product) was due partly to statistical convenience and partly to the fact that for various reasons gross domestic product (outside of the United States) has emerged as the most extensively used aggregate among national income statisticians. (See Organization for European Economic Co-operation and United Nations sources cited in the Appendix.)

TABLE I.—SHARE OF GOVERNMENT IN GROSS DOMESTIC PRODUCT IN MORE DEVELOPED COUNTRIES

(Per cent of Government Receipts to Gross Domestic Product at Current Prices. Countries Listed in Order of Their Postwar Averages.)

Country	1948	1949	1950	1951	1952	1953	1954	Postwar Average	1938
United Kingdom	38	38	38	36	36	34	33	35	25
Finland	—	—	32	30	33	32	30	31	19
Netherlands	31	31	30	31	32	30	—	31	22
France	—	28	30	30	31	32	33	31	—
Sweden	25	26	29	30	29	31	33	31	19
New Zealand	31	29	27	32	31	29	30	30	23
Norway	33	32	31	29	30	29	—	30	19
Ireland	—	27	28	29	29	28	—	28	26
Canada	26	25	25	28	27	27	27	27	18
West Germany	—	—	25	27	28	28	28	27	—
United States	24	23	25	27	27	27	26	26	19
Australia	—	25	23	23	28	25	25	25	20
Belgium	24	23	24	25	25	24	—	25	—
Denmark	25	24	22	23	24	24	—	23	19
Japan	23	31	23	22	21	21	21	22	15
Venezuela	—	21	22	—	21	21	—	21	—
Switzerland	22	21	22	20	20	21	21	21	17
Chile	19	21	20	21	23	—	—	21	18[a]
Italy	—	—	—	19	21	—	—	20	—
Israel	—	—	—	—	18	20	—	19	—

[a] 1940.

Note: See Appendix for methods, sources, etc.

TABLE II.—SHARE OF GOVERNMENT IN GROSS DOMESTIC PRODUCT IN LESS DEVELOPED COUNTRIES

(Percent of Government Receipts to Gross Domestic Product at Current Prices. Countries Listed in the Order of Their Postwar Percentages.)

Country	1948	1949	1950	1951	1952	1953	Average	1938
Ceylon	20	20	16	19	20	20	19	19
Brazil	16	16	16	18	18	19	18	16[a]
Puerto Rico	—	17	17	17	17	17	17	—
Cuba	14	14	15	15	15	17	15	—
Indonesia	—	—	—	14	16	—	15	14
Burma	15	11	14	15	16	17	15	12
Malaya	—	13	11	13	16	16	14	—
Colombia	9	9	10	11	11	10	10	—
Mexico	9	11	10	11	—	—	10	11[a]
Pakistan	—	8	10	11	10	9	10	—
Philippines	7	7	7	9	10	9	8	—
India	8	8	8	9	8	8	8	—

[a] For Brazil 1940, for Mexico 1939.

Note: See Appendix for sources, methods, etc.

The main factor to keep in mind in interpreting the percentages in Tables I and II is not so much the quality of the data on the government share but that of the denominator, gross product. For nearly all countries, the data from the government budget are the most reliable portion of gross-product estimates. And though the latter have greatly improved in the past five years and are the best presently available, the errors are still considerable, especially for the underdeveloped countries. Small differences in the percentages between countries (except perhaps for the Scandinavian countries, the United States, Canada, Australia, United Kingdom, Netherlands, and one or two others) would not be significant. Nevertheless, the percentage differences between countries are sufficiently large to make the tables worth studying.

Countries commonly regarded as more developed are in general included in Table I and the less developed in Table II. In the countries listed in Table I, the share of government in total charges against gross domestic product is one-fifth or more; in the countries in Table II, less than one-fifth. What may be termed semideveloped countries (Japan, Italy) occupy a middle position. As in all empirical material, one expects to find surprises. Venezuela, which is commonly regarded as an underdeveloped country, has an average of 21 per cent. The main reason for this is the large share of revenue from foreign countries for oil production. Countries which are able to tax exports such as Ceylon (as well as Venezuela) tend to show higher percentages than their level of economic development would lead one to expect. Somewhat surprising is the position of the United States. By other indexes, such as per capita income, labor-force proportion engaged in agriculture, the importance of the noncommodity producing sectors, the size of the wage-earning class, the proportion of wages to national income, the United States usually shares the top of the list with the United Kingdom. It is difficult to explain the relatively low

percentage for the United States except in terms of the philosophy of *laissez faire* and private enterprise to which it adheres—at least to a greater degree than other developed countries—and to the greater productivity of its economy.

Somewhat surprising also is the low percentage for India. The chief reason for this may be the inability of the central government to tax agriculture, which is the principal means of livelihood. Under the terms of the Indian constitution, the power to tax agricultural land, incomes, products, etc., was denied the central government and reserved for the local authorities.[1] The share of the Indian central government in total governmental receipts was 60 per cent in 1950. This is the lowest percentage found in Asian countries for which requisite statistics are available.[2]

On the whole, the underlying pattern discernible in the tables is that of a direct variation between the percentage share of government in gross domestic product and the degree of development of the economy, if one accepts the division of the countries between the two tables. The obvious, general explanation for such a relationship is the relative productivity of the economies. As an approximate tendency, the more developed the economy the greater its productivity. The greater its productivity the larger the relative margin of incomes above strictly physical subsistence, and the larger this margin, the greater, generally speaking, the potential taxable capacity of the economy. In a purely subsistence economy such as that of African communal tribes remote from the influences of Western economic penetration, the productivity of the economy is probably so low that the share of the government is lower than in any of the countries shown in the tables. The figure for Nigeria in the study by A. R. Prest and G. Stewart, *National Income of Nigeria,* is 6 per cent and P. Deane's surveys of African village economies of Tonga and Lozi households, though admittedly approximate, suggest even lower percentages.[3]

Underdeveloped countries like Ceylon and Venezuela with high percentage shares of government receipts are able to extract larger revenues than their level of productivity seems to warrant at the expense of the rest of the world. Due to a variety of reasons, they are able to tax their exports without destroying their markets abroad.

However, the foregoing explanation is weakened by the fact that the use to which government revenues are put, or the expenditure side of the statement, is not taken into account. Imagine, for example, a government which uses its entire revenue from existing taxes to purchase bread to be distributed free to

[1] See U. K. Hicks, *India, Public Finance Survey* (United Nations, New York, 1951), pp. 38-39.

[2] In 1950, the central government's share in Japan was 78 per cent, in Ceylon 92 per cent, in Malaya 77 per cent, in Indonesia 98 per cent, in Pakistan 62 per cent and in the Philippines 86 per cent. For Japan, between 1880-1900, the percentage exceeded 70 per cent.

[3] The main conceptual difficulty in these studies is the problem of valuation, especially with respect to regional pricing. The income statistics of the Rhodesias show a higher percentage share of government. But in these countries the Westernized sector is considerable and the income of the purely indigenous sectors is a notional estimate. See also H. J. Herskovitz, *Economic Anthropology* (New York, 1952), Part V.

its citizens in proportion to their tax payments. In this situation, it can continue to levy new taxes without any difficulty. Clearly, there is a need to consider the nature of the expenditures, especially certain types of transfer payments, subsidies, etc., which go to maintain or add to current productivity. However, as a rough approximation, in the explanation discussed above it is assumed that the overwhelming part of government expenditures are what Kuznets designates costs of the social framework and are not a part of final product satisfying human wants. "This does not mean that such changes in the social framework may not facilitate greater production *in the future;* but then it will be accounted for when such greater production means a greater flow of goods to individuals."[4] Such expenditures, including also capital expenditures and large parts of those for education, health, sanitation, etc., are costs which either maintain current productivity or add to future productivity. Even in the case of certain types of transfer payments such as pensions to the aged and benefits to the unemployed, the payments go to individuals who are not participants in the productive activity of the economy.

The percentages for each country during the postwar years are, in contrast to intercountry variations, remarkably stable. With the exception of Ireland, Netherlands and Australia, the percentages do not vary more than three percentage points, with India and Puerto Rico showing no change as far as the postwar years are concerned. One may account for the stability in the relation of the two components as follows. Assuming no changes in the structure of

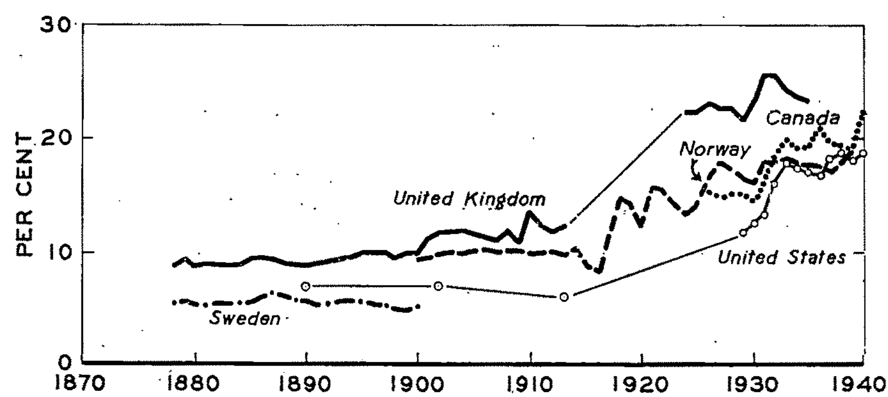

CHART 1. PERCENTAGE SHARE OF GOVERNMENT RECEIPTS IN GROSS NATIONAL PRODUCT 1870 TO 1940: UNITED KINGDOM, CANADA, NORWAY, UNITED STATES, SWEDEN

taxes and their rates, changes in incomes will be directly reflected (even though not proportionately) in changes in direct taxes and income of government from property and entrepreneurship, while changes in output will directly affect indirect taxes. And these receipts make up nearly all of the share of government as defined in this paper, the major exception being property taxes. Tax

[4] E. Lundberg, ed., *Income and Wealth,* Ser. I (Cambridge, England, 1951), p. 193. Emphasis mine. In a footnote, the above statement is noted to apply to government capital formation.

laws do change; but in the short run, barring revolutionary upheavals, the changes in rates and structure are usually small and compensatory. Drastic changes meet with determined opposition from interested groups.

The stability shown for the postwar years probably has existed for previous short periods under comparatively normal circumstances, as the accompanying chart indicates (see Chart 1). The changes in the percentages as between prewar and postwar periods may be grouped into three categories. In one group are countries where the percentage for 1938 is significantly smaller than any percentage shown for the postwar years: United Kingdom, Finland, Sweden, Norway, Canada, Netherlands, United States, Sweden, Switzerland and Japan. In these countries with few exceptions the percentages for 1938 are around 15 to 20 and these jump to 25 to 30. A second category of countries show little change between prewar and postwar: Brazil, Ceylon, Indonesia, Mexico, and, considering central government revenues only, Argentina (10 per cent), Thailand (10 per cent), Egypt (20 per cent) and Portugal. In the third category of countries, the magnitude of the changes in the two periods lies between the other two categories: Burma, Australia, New Zealand, Ireland and Chile. There were increases in the share of government but the increases were not as large as in the first group.[5]

The first group of countries is largely made up of developed countries in contrast to the second group which is mainly composed of underdeveloped countries. These figures taken together with the chart suggest the hypothesis that in a developing economy, productivity of the economy during short-run normal years increases faster than the percentage share of the government. It takes a major event (wars, depressions, etc.) to raise government expenditures beyond previous levels and to force authorities to expand receipts beyond previous levels. But after the war, depression, etc., the percentage share of the government does not recede to the previous low levels. Apparently, the spending needs of the government are inexhaustible and once sources of revenues are opened up, ways of spending them are easily found. This suggests that the major constraint on total government activity is not the expenditure side of its account but its revenue side, even for developed countries. (During an abnormal period, large-scale borrowing is possible.)

For underdeveloped economies, changes in productivity proceed slowly and even major events cannot succeed in raising the share of government appreciably. With slow changes in productivity, there is little tendency for the share of government to lag behind productivity. This may be seen in the early figures for the United States, United Kingdom, and Norway. The percentages do not vary much and even wars prior to the first world war do not make an appreciable dent in the level of the government's share in gross product.

For each country in the chart, the historical drift of the percentage share of government is upward. Note that the share for the United Kingdom is considerably higher than the others. The percentage share of the Japanese

[5] Participation in the war was a factor necessitating a greater share for government for those countries actively engaged.

government in the 1880's is around 10 to 15 per cent.[6] Even if 10 per cent is used, Japan's share around 1880 is very high, as high as the percentages for the United Kingdom. The economy of the United Kingdom in 1880 was a highly industrialized one with railroads, steamships, factories, scientific agriculture, etc. Industrialization in Japan in 1880 had hardly begun, with very few factories and hardly any railroads; it was for all intents and purposes a feudalistic economy, predominantly agricultural. For its government to extract a share as large as 10 per cent or more from such a low-productivity economy would seem to involve extreme sacrifices on the part of the peasantry—sacrifices which could only be induced by repressive measures. This need for a large government share may explain in part the authoritarian character of the Meiji government.[7]

Limitations on the foregoing discussion (other than statistical) should be indicated. The generalizations suggested are valid only in a broad sense. They have been derived from global aggregates. It is obviously necessary to go beyond such global totals, to differentiate between types of receipts (indirect and direct taxes, property incomes, enterprise incomes, fees, fines, etc.) and levels of authority (central, state, municipal, village, etc.). More important, the expenditures of the government should be taken into account and related to the receipts of government. If the expenditures could also be divided into sector destination, a consolidated government account might be obtained which would show the flow of funds from the sector of origin to the sector receiving the funds. Such a scheme, together with a classification by types of receipts and expenditures and a functional classification of expenditures might be useful for developmental purposes in the case of the underdeveloped countries. The increasing availability of global statistics, national income and product and consolidated government accounts, will in time make available a broad statistical framework for the detailed study of government activities.

Appendix

Domestic product as distinct from national product measures the nation's product without deduction of output corresponding to property income going to nonresidents (less property income received from abroad). More appropriate than gross product would be net domestic product, which is exactly divisible into the three shares: income from work, income from property and

[6] If K. Ohkawa's national income estimates (raised 3 per cent for depreciation) are used, the share is closer to 15 per cent. If the total computed by the writer in another paper is used, the share is closer to 10 per cent.

[7] See also M. Abramovitz, ed., *Capital Formation and Economic Growth* (New York, National Bureau of Economic Research, 1955), pp. 244-46. The stability of the percentages for any given country suggests something about the reliability of the gross product estimates. For Japan, these estimates from 1930 to the present are known to be more reliable than any available estimates before 1930. While the government's percentage share is stable for the 1930's and 1950's, it is highly unstable for the period before 1930. This may be due partly to the unusual importance of land taxes whose yields were largely insensitive to gross product changes. The percentage for Brazil in Table II seems also rather high and that for Mexico somewhat low. Gross product estimates for the former may be too low and for the latter too high.

the share of government. But depreciation estimates are more or less arbitrary for most of the underdeveloped countries. Valuation of product at factor cost is not suitable since it excludes indirect taxes which are a large part of the share of government. This share defined to exclude indirect taxes becomes a somewhat arbitrary magnitude as far as the purpose of this paper is concerned.

However, in market-price valuation, subsidies are deducted from indirect taxes; the total share of government could be better compared by using as denominator a total which includes subsidies. Since subsidies are as much a part of factoral income of recipients as any other income, they should be left in the share of the recipients; and since the measure of the government share should include *all* indirect taxes subsidies should not be netted out in the valuation of gross domestic product. This would give an aggregate equal to gross domestic product at market prices plus subsidies. However, statistically, subsidies make very little difference and for this study the adjustment was not thought worth making.[8]

The share of government in gross domestic product at market prices may be represented in the consolidated government account as follows:

Payments	*Receipts*
Government expenditure on goods and services	Indirect taxes
Subsidies	Direct taxes
Interest on public debt	Income from property
Transfer payments	Profits of government enterprises
Surplus (or deficit)	Nontax receipts
Total payments	Total share

In this study, only the receipt side of the account needs to be defined. In general, the definitions employed are those found in the United Nations' *A System of National Accounts and Supporting Tables* (New York, 1953), p. 36, which are also those used in the standardization by the Organization for European Economic Cooperation.

Indirect taxes: taxes on goods and services chargeable to business expenses and taxes on the possession or use of goods and services by households. Specifically these are import, export and excise duties, local rates, entertainment, betting and sales taxes, licenses, stamp duties, vehicle taxes, etc. Real estate and land taxes are also included if they are not merely administrative devices for the collection of income taxes, as in Asian countries.

Direct taxes: all taxes other than indirect. They include income taxes, surtaxes, and social security contributions.

Income from property: rent, interest and dividends accruing to the government from the ownership of property.

Profits of government enterprises: the profits of all such enterprises except

[8] Gross domestic product at market prices plus subsidies adds a duplicative item to gross product. But for the purposes of *real* product measurement over time or between countries, the conventional total, gross product at market prices, is not devoid of a significant amount of duplication. See S. Kuznets in *Income and Wealth*, Ser. I, *op. cit.*

those of government monopolies such as those for tobacco and alcohol. The profits of the latter are included in indirect taxes (or subsidies, when negative.) The line between the two types of enterprise is difficult to draw and in general all others are included here. Government enterprises are defined as units which are financially integrated with general government.

Nontax receipts: these exclude sale of existing assets and include fees, fines, penalties and similar charges. In the UN system, a small portion of these are regarded as household consumption expenditures and are excluded. For the purpose of this paper, it is best to treat all of these as government receipts. (But the sum involved is thought to be small.)

In the UN system, capital levies, inheritance taxes, and the like are excluded from government receipts on the ground that they are not paid out of current income. For the purpose of this paper, these are included in direct taxes.

Government is defined to include, besides central, state and local authorities, various other entities such as social security boards, funds, agencies, etc., where compulsory contributions are involved. (See UN System, pages 11 and 12 where government enterprises are defined as distinct from public corporations.)

On the basis of these definitions, both the UN Statistical Office and the OEEC have undertaken the task of standardizing government statistics and national accounts. However, the standardization has not advanced very far with respect to a number of underdeveloped countries.

For most countries in Tables I and II, the data on the share of government has been taken from consolidated government accounts in the national income publications. (These publications are cited in the UN's *Statistics of Income and Expenditures,* Series H, No. 9 [New York, 1956].) The exceptions are as follows. For Finland, West Germany, Venezuela, Switzerland, Israel, Chile, Italy, Brazil and Ceylon, the data have been obtained from government budgets as published in the official statistical yearbooks of each country. Since these budgets for various levels of governments were not consolidated, intergovernment transfers were deducted. Receipts from sale of property, gifts, borrowing, proceeds of loans, carryovers from previous years and similar items were deducted. Wherever possible receipts from government enterprises were taken on a net basis. On the whole this approach tends to overstate somewhat the share of government since a small part of transfer payments and capitals receipts were difficult to eliminate. A slight modification was adopted for Cuba and Pakistan for which local government revenues were not available. Income originating in local governments was substituted for their receipts. The resulting understatement is thought to be slight for these countries.

Gross domestic product statistics in Tables I and II were taken from *General Statistics,* Nov. 1955, published by OEEC (for most of the European countries), and from the *Statistics of Income and Expenditures,* Series H, Nos. 8 and 9, and in a few cases from the official national income publications. Net totals for Pakistan and India were raised 4 per cent for depreciation. Argentina, Thailand, Egypt, Turkey and Greece were omitted from the tables

because local government statistics were not available. The Rhodesias were excluded because income of the indigenous tribes was notional.

The data underlying the chart were taken from the following sources: for the United Kingdom gross national product, from the paper by J. B. Jeffreys and D. Walters in *Income and Wealth* Series V, National Institute of Economic and Social Research, Reprint Series No. 6 (London, 1956); the share of government from budget statistics in the various issues of the *Statistical Abstract of the United Kingdom*. For the United States, gross national product for 1902 from R. Goldsmith, *A Study of Savings*, Vol. 3 (Princeton, 1955), extrapolated to 1890 with the national income series of the National Industrial Conference Board. Share of government for 1890, 1902 and 1913 from *Historical Statistics of the United States*, Census Bureau. All data from 1929 on from Commerce Department national income accounts. For Norway from *Nasjonalregnskap*, 1900-1929, 1930-1948 (Central Bureau of Statistics, Oslo, 1953, 1952). For Canada, from *National Accounts*, 1926-1950 (Ottawa, Dominion Bureau of Statistics, 1952).

Mimeographed copies giving further details as to sources and concepts together with the absolute figures for the government share underlying Tables I and II and all figures for the chart are available to readers who may wish to write for them to the author, Food Research Institute, Stanford University, Stanford, California.

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* The author is a member of the research staff of the Food Research Institute, Stanford University. The paper was read and criticized by Rosamond Peirce, statistician, Food Research Institute.

An Estimate of the Tax Element in Soviet Bonds[1]

It has long been common knowledge among students of Russian affairs that government sale of bonds to the Soviet population is not accomplished on a completely voluntary basis. To the extent that sales are compulsory, of course, a tax element is introduced. The use of compulsion by a government to achieve economic ends can usually be defined as involving a tax upon individuals, though typically the relationship is not as obvious as in the case of forced loans.[2] A method of estimating the amount of tax in the case of Soviet forced loans will be indicated below.

The Soviet so-called "mass-subscription" loans have been sold to workers and peasants at their places of work since 1927.[3] Payment is typically made in 10 equal monthly installments in the form of wage-withholdings. The bonds pay a nominal annual interest return which amounted to 13 per cent in 1927

[1] The data and institutional information which provide the background of this paper are taken from Soviet sources cited in this writer's *Soviet Taxation: The Fiscal and Monetary Problems of a Planned Economy* (Cambridge, Mass., 1955), Ch. 8.

[2] The draft of citizens into the army, for example, can be viewed as constituting a tax in kind equal in value to the difference between civilian and army pay.

[3] The bulk of bonds have been sold to workers, however. In the discussion which follows, we will be primarily concerned with purchase by workers.

...ed and stands now at 2 per cent. Since the early ... has been discharged primarily in the form of ...ties, everyone was the winner of at least one ... bond. Today, only one out of every four bond- ...—but it is a much larger prize—the rest receive ... end of 20 years (in the early 'thirties, 10 years) ...zes are highly differentiated ranging, today, from ...bles on a 200-ruble bond.[4] Lottery winners simul- ... principal; otherwise the bonds are not redeemable ...roduction of the lottery element as well as the gradual ... and larger prizes was undoubtedly for the purpose of ...less unattractive investment to the Soviet captive-sub- ...ence of many countries with lotteries of this kind had ...popularity with the public (at least when the bonds were ... basis.)[6]

...aracter of Soviet loans can be deduced in a number of ways. ...source of direct information however: former Soviet citizens ...de the U.S.S.R. report rather consistently that strong pres- ...ed on workers to subscribe from 2 to 4 weeks salary every year.[7] ...irectly, it seems highly unlikely that a people with a standard of living as low as the Soviet standard of living would be willing to invest roughly 5 per cent of personal income every year in bonds not redeemable before maturity or at least not before a lottery is won.[8] This decision would be difficult enough to understand if the Soviet government made no other claims upon the citizenry. In fact, however, the Soviet tax burden is the highest in the world and claims about 50 per cent of personal income every year apart from sales of bonds.[9] That more than one-quarter of the taxes collected are spent

[4] A. V. Bachurin, *Finansy i kredit SSSR* (Finance and Credit in the USSR) (Moscow, 1953), p. 210.

[5] Assume, for example, that the Soviets issue a 1 million ruble 2 per cent 20-year loan which is subscribed to by 10,000 persons each purchasing a 100 ruble bond. The total annual interest due would be 20,000 rubles or an average of 2 rubles per person. Under present lottery arrangements, however, the entire amount is divided up among one-eightieth of the subscribers or 125 persons who receive an average of 160 rubles each, with some getting considerably less and a few considerably more, depending on the draw. After 20 years, 2500 persons would have won prizes and have had their bonds retired; the remaining 7500 would receive back their 100 rubles principal without interest.

[6] The most recent entrant in the field of government bond-lotteries is Great Britain. The forthcoming British lottery was announced in the spring, 1956 by the then Chancellor of the Exchequer, Sir Harold MacMillan.

[7] Available aggregative data on value of bonds purchased by the population and on total personal income indicate the reliability of these informants at least with regard to the "2 to 4 weeks salary" figure. We have no way of checking directly their statements about the existence of "pressures."

[8] In 1940, for example, bond purchases totaled 9.2 billion rubles or 5.5 per cent of a total personal money income of 236 billion rubles. *Cf. Soviet Taxation*, pp. 251-52.

[9] *Cf. Soviet Taxation*, p. 253; F. D. Holzman, "The Burden of Soviet Taxation," *Am. Econ. Rev.*, Sept. 1953, XLIII, 561. Of course, the level of taxes and the standard of living are not entirely independent causes of a low voluntary savings function. However, even if

every year on education, health, old-age pensions, and other things of this nature for which people in capitalist countries typically put money aside, further reduces the population's propensity to save.

The serious price inflation which engulfed the [illegible] to 1948 would have been sufficient to have discouraged [illegible] the absence of all other deterring factors. Retail prices [illegible] purchased by the population rose roughly 6-fold from 19[illegible] fold from 1928 to 1948.[10] Despite the high nominal rate [illegible] from 13 per cent in 1927 to 8 per cent in the early 'thirties [illegible] interest must have been negative for all years before 1948 with [illegible] 1927 and perhaps 1928, at which time the inflation was just [illegible] For the average price increases over these years were 22 per cent [illegible] annually from 1928 to 1937 and 14 per cent from 1928 to 194[illegible]

As an investment, the attractiveness of the mass-subscription [illegible] have been still further reduced by the currency conversions of 1930, [illegible] 1938 and 1947. In the first three of these, all outstanding bonds were rec[illegible] and reissued at lower interest rates and with more distant maturity dat[illegible] The conversion of 1947 was part of the more general currency reform of December of that year. The provision with respect to mass-subscription bonds outstanding was for the conversion of all outstanding issues, regardless of when they had been purchased, to a new 2 per cent 20-year loan at a ratio of three old bonds for each new bond.

In the late 'twenties, though the bonds were obviously sold on a compulsory basis, the burden of purchase was probably somewhat lightened by the real enthusiasm that many workers felt for the five-year plan as the road to socialism and to a better way of life. As revolutionary ardor cooled and the standard of living in the 'thirties fell and remained below the 1928 level, it seems likely that the salutary effects of this factor were attenuated.

Two other phenomena are indicative of the compulsory nature of these loans. First, despite the fact that the bonds are obviously not a desirable form of investment, the flotations have always been oversubscribed and usually within a few days of the issue date. For example, the loan of 1953 was reported by the Soviets to have been oversubscribed in 4 days.[12] Second, in addition to "mass-subscription" loans, the Soviets also have so-called "cash" loans—gov-

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Soviet taxes were no greater than in other nations, it seems dubious that the standard of living would be sufficiently high so that the people would annually invest 5 per cent of their income in bonds.

[10] These figures are taken from Janet Chapman, "Real Wages in the Soviet Union, 1928-1948," *Rev. Econ. Stat.*, May 1954, XXXVI, 143. Mrs. Chapman computes a series of estimates based on different weighting systems. I have taken simply a crude average of her results. Naum Jasny's estimates of a worker's cost of living in the USSR correspond rather closely to the higher of Mrs. Chapman's estimates. Jasny's estimate for 1940 shows roughly a 50 per cent increase in cost of living relative to 1937. *Cf.* his *The Soviet Economy During the Plan Era* (Stanford, 1951), p. 58.

[11] The existence of a negative real rate of interest is probably a sufficient explanation of the refusal of the Soviet government to convert bonds freely.

[12] *New York Times*, June 10, 1954, p. 7.

ernment bonds much like our "E" bonds which can be purchased at state banks by anyone at any time. Needless to say, these bonds are not great sellers, and the few which are sold probably go to higher-paid government functionaries, factory managers, and successful artists. The obviously voluntary nature of the "cash" loans highlights the compulsory character of the "mass-subscription" loan.

The tax element in the compulsory sale of a bond is defined as follows:

$$T = V_f - \frac{V_m}{P_n/P_o}$$

T is the absolute amount of tax.
V_f is the present value of the bond at its nominal or stated rate of interest.
V_m is the present value of the bond at the market rate of interest[13] on the assumption that the purchaser expects no change in consumers' goods prices over the life of the bond.
P_n/P_o is the price index of consumers' goods which the bondholder, at date of purchase, expects to prevail in the year when the bond matures.

Let us assume now that in the early 'thirties a worker is forced to buy a 100-ruble 10-year 10 per cent bond. The nominal present value of such a bond is 39 rubles[14] and this is the amount the worker had to hand over to the state. The amount which he would have been willing to have paid for such a bond would have been much less, of course, though presumably the bonds would have sold on a voluntary basis had the interest rate been sufficiently high (*i.e.*, the present value sufficiently low). The market rate of interest tended to be higher than the nominal rate carried on the government bonds for the following reasons: (1) low income, (2) expectation of further inflation, (3) possible expectation of further "conversions," and (4) nonnegotiability, which made it impossible to avoid risks connected with (2) and (3) as well as all other risks.

We can be quite sure that the market rate of interest must have been higher than 10 per cent in the 'thirties because of the low income and nonnegotiability factors alone. This is deduced as follows. There was no inflation, and probably no expectation of inflation in 1927; nor is it likely that there was any expectation of a bond conversion since the first of these occurred in 1930. Nevertheless pressure had to be brought to bear upon the population to subscribe to bonds carrying a nominal rate of interest of 13 per cent. This implies that the market rate for household savings must have been higher than 13 per cent at the 1927 level of income. During the 'thirties, however, the level of income of the population was certainly below that of 1928, and probably also of

[13] By market rate of interest we mean that hypothetical rate of interest at which the Soviets could just sell to the population in a free market and on a voluntary basis their entire flotation of bonds. As indicated, however, for analytical purposes we exclude the effect on the interest rate of the expectation of rising prices.

[14] All present values are rounded to the nearest ruble.

1927;[15] hence the demand for bonds in the 'thirties must have been still lower, and the implied market rate of interest still higher, than in 1927. While it is obviously impossible to determine the rate of interest on bonds which would have prevailed had there been a free market, it seems conservative in light of the facts mentioned to suggest a minimum rate of 15, or even 20 per cent. Now the present value of a 100-ruble 10-year 15 per cent bond is 25 rubles, and of a 20 per cent bond, 16 rubles. So even abstracting from the expectation of inflation which prevailed, the tax on Soviet bondholders amounted at least to from 14 to 23 rubles out of the 39 rubles paid to the state.

The tax element is much greater, of course, if inflation and the expectation of further inflation are taken into account. Let us assume that the expectation of inflation in the 'thirties corresponded with the degree of inflation which actually prevailed from 1928 to 1937, *i.e.*, a 600 per cent increase in prices over the 10-year period. In this case, workers would not have been willing to pay 16 or 25 rubles for the bond under discussion, but only this amount deflated by the six-fold price increase, *viz.* 2⅔ or 4⅙ rubles. The tax element increases then to 34⅚ and 36⅓ rubles out of the 39 rubles handed over to the state. In other words, the tax amounts to 89 and 93 per cent of the price of the bond. If expectation of further "conversions" could be quantified, the tax element in the sale price of bonds would, of course, be increased still further.

Further estimates may be made to take account of changes both in economic conditions and in the terms of sale of the bonds during the 'thirties. Thus, the nominal rate of interest dropped from 10 to 8 and then 4 per cent; the life of bonds was lengthened from 10 to 20 years;[16] inflation proceeded unevenly; the lottery principle was introduced and may have increased somewhat the desirability of the bonds.[17] A crude indication of the effect of changes in some of the factors mentioned is shown in Table I:

TABLE I.—TAX ELEMENT AS PER CENT OF COMPULSORY PURCHASE PRICE (T/V_f)

Nominal or stated rate of interest	Expected 10-year price rise:	200%		600%	
	Market rate of interest:	15	20	15	20
10		67.9	79.5	89.1	93.2
8		72.8	82.6	90.8	94.2
4		81.6	88.2	93.8	96.1

[15] It is now generally conceded that the standard of living of the population which fell sharply for 4 years after the first five-year plan was put into effect in 1928, did not recover in the 'thirties to the 1928 level. Mrs. Chapman's estimates indicate that the real wage of workers in 1937, before direct taxes and bond purchases, was from 58 to 82 per cent of the 1928 level (*op. cit.*, p. 146). And 1937 was probably the best year of the 'thirties for the consumer.

[16] This was offset at about the same time by the introduction of lotteries. Since lottery winners' bonds were retired and since everyone eventually won a lottery, the average life of the 20-year bond was 10 years.

[17] The favorable effect on the implicit market rate of interest of the lotteries was offset in part, if not entirely, by the declining enthusiasm of the population, the rising rate of

If our assumptions are reasonable, then at best, the tax element must have amounted to more than two-thirds of the price of bonds in the 'thirties; at worst it amounted to almost the entire price of the bond, *i.e.*, the sale of bonds was virtually equivalent to the collection of taxes.

Since the currency reform of 1947, conditions have improved considerably and the element of tax in Soviet bonds has probably been reduced substantially. True, the mass-subscription loans are still, apparently, forced upon the population,[18] the nominal interest rate has declined to 2 per cent, bonds are still neither marketable nor redeemable upon demand and the standard of living is still low.[19] On the other hand, however, the income and standard of living of the population have risen steadily and fairly rapidly over the past 10 years,[20] probably generating a genuine desire to save among some elements of the population. Even more important, the bonds are a better investment than before because inflation has been halted. In fact, a planned deflation has been in effect since 1948 and prices are currently at less than half of the 1947 level.[21] Finally, there have been no conversions since 1947.

Suppose, for example, that the implicit market rate of interest has fallen to 15 per cent abstracting from price expectations, and that the expectation of bondholders is for prices to fall to one-half of the present level over the next 15 years (the expected life of a 20-year bond issue, 25 per cent of which is retired before maturity). Given the 2 per cent rate carried by new Soviet bonds, the tax element works out to 39 per cent of the present value of the bonds. If the market rate of interest were assumed to have fallen to 10 per cent the tax element would be reduced to 5 per cent. In my opinion, the market rate, abstracting from price expectations, is not likely to have fallen by so much. Incomes at present, while rising, are hardly above the 1928 level.

The decline in the tax element in Soviet bonds may be responsible for the reduced Soviet reliance on bond sales in recent years. In particular, the issues of 1953 and 1954 were only one-half those of 1951 and 1952. Bond sales were stepped up again in 1955 to meet growing inflationary pressures generated by the reinstitution by Bulganin and Khrushchev of the traditional policy of emphasizing industrial development at the expense of the consumer.

ADDENDUM: *Pravda* reported on April 10, 1957 Khruschev's speech of April 8 proposing to the Soviet people that the Soviet government stop pay-

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taxation, and the increasing provision of free medical and educational services to the population.

[18] This seems quite clear from the fact that when flotations of 1953 and 1954 were reduced to 15 billion rubles after having been at 30 billion in 1951 and 1952, there was no attempt by the population to "over-subscribe" to the tune of 15 billion rubles.

[19] The expectation of redemption before the end of 20 years is also less at present than in the 'thirties since only 1 out of every 4 bondholders can expect to win a lottery. On the other hand, this disadvantage may be offset by the possibility, though lower probability, of winning a larger prize, and by the effect of the planned deflation (below).

[20] Peter Wiles, "Retail Trade Prices and Real Wages in the U.S.S.R.," *Bull. Oxford Univ. Inst. Stat.*, Dec. 1954, XVI, 373-92.

[21] *Cf. Narodnoe khoziaistve SSSR* (National Economy of the USSR), (Moscow, 1956), pp. 210-11.

ment, for the next 20 or 25 years, of both principal and interest on the 260 billion rubles worth of "mass-subscription" bonds outstanding. Furthermore, he proposed that beginning in 1958 sales of bonds to the population be discontinued with the exception of the so-called "cash" or "freely circulating" bonds. The discontinuance of sales of "mass-subscription" bonds is easy to understand in light of the decline or elimination of the tax element in the bonds. The (what appears to be a) default is a drastic step and is hard to understand at the present time in the absence of overt crisis and in view of the fact that the service burden is slight and will continue to be slight until 1968 when the first of the bonds outstanding, aside from lottery winners' bonds, are due for retirement.

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BOOK REVIEWS

General Economics; Methodology

On the History and Method of Economics—Selected Essays. By FRANK H. KNIGHT. (Chicago: University of Chicago Press. Pp. viii, 309. $6.00.)

The habit of celebrating the birthdays, or the retirement, of valued academic figures by the publication of a *Festschrift* is one which springs from motives which are to be highly commended. But the results are often to be deplored. Who does not know them, those forlorn tomes with their pious dedications and their pathetically miscellaneous contents? Apart from the honored recipients, whom we must assume to be moved by a deep sense of obligation, who reads them? Who remembers what they contain? For the most part, unless they are republished elsewhere, the tributes are almost as lost as the verses which, so we are told, were thrown by the assembled poets into Edmund Spenser's tomb.

The friends and admirers of Frank Knight have adopted an alternative method which, it is to be hoped, will be widely imitated. Instead of presenting the individual to be honored with a heterogeneous collection of *other people's* writings, they present him with a homogeneous collection of *his own,* thus indicating the value they set on his thought and taking effectual steps to bring it further to the notice of the public. Where Frank Knight is concerned, this has happened three times, with the result that in the collections thus assembled, *The Ethics of Competition* (New York, 1935), *Freedom and Reform* (New York, 1947), and the present volume, there have been preserved for posterity and made readily accessible for the use of students some of the most valuable contributions to the thought of our time, which otherwise, by reason of the innate diffidence of their author, might have remained forever dispersed in the comparative obscurity of the files of old journals. It is a service for which we should all be grateful to the successive generations of his pupils who have been responsible.

The History and Method of Economics is divided into four parts. The first two deal with history and contain, respectively, a long article on "Economics" from the 1951 edition of the *Encyclopaedia Britannica* and a collection of critical dissertations on Ricardo, Wicksteed and Sombart. The third contains a collection of articles on method; while the fourth contains two papers, a presidential address to the American Economic Association and another, which also touch on method but which are perhaps more concerned with certain ultimate questions of value and conduct.

The leading feature of the historical sections is the long essay on the "Ricardian Theory of Production and Distribution." Here the object is avowedly not so much to give a sympathetic exposition of the origin and history of the system under discussion as to make it the subject of critical

analysis designed to exhibit what in the author's opinion are "correct" (F.H.K.'s quotes) views. In this, I think, it is outstandingly successful. It is much easier, after reading this commentary, to understand what its author has been trying to elucidate in his own more positive statements; and the future historian of thought will do well to read it in conjunction not only with *Risk, Uncertainty and Profit* but, even more, with more recent contributions to the theory of capital and interest. At the same time, while there is certainly no very strenuous attempt to discover what core of local and temporal justification may inhere in the various propositions under review, I would not say that the criticism, which is very severe, usually goes beyond the bounds of a degree of simplification legitimate for the purpose in hand.

There is one exception to this, however. I cannot believe that it is even approximately correct to argue, as Knight argues, that the "Classical economists give no picture of a system of prices and practically no hint of a system of economic organization worked out and directed by price forces" (p. 41). It is true that there were many details left for subsequent generations to fill in. But surely it was just such a picture—a picture of the division of labor in relation to the market—which was the great achievement of the classical system—an achievement which will endure long after its more detailed propositions have been shown, either to be just wrong, or to belong to the category of very special cases. I cannot help thinking that in stating this alleged "aberration" of the classical system, Knight was thinking almost solely of Ricardo's *Principles*, which avowedly is confined chiefly to problems of value and distribution; and was forgetting not only that "Ricardo's own great master" is specifically included in his preliminary statement of the extent of the system under criticism (p. 37), but also that in the masterly (and much more tolerant and conciliatory) general account of the history of economics with which the collection opens, he refers to the "thoughtful men who, with Adam Smith's picture of the mechanism of organized economic life in their minds" (p. 10), attempted to explain the phenomena of agricultural prices, rents and rates of profit and interest in the period after the Napoleonic Wars.

For many readers the main interest of this volume will reside in the section which deals with method. It is not easy to define the peculiar excellence of Knight's contribution to this field. It is a matter on which any short statement must almost necessarily be wrong, and almost certainly distasteful to the distinguished author, whom, with the compilers of this collection, I am especially anxious to please. Indeed I can conceive a contention that perhaps its chief value lies in the process of assimilating it, of having one's nose rubbed against the ultimate questions and being made to appreciate how difficult they are. But there are perhaps two features which lend themselves to special mention.

First, comes his emphasis both on the value and on the limitations of purely economic explanation. Here, from his first work in this field, the memorable essay on "The Limitations of Scientific Method in Economics" in the Tugwell symposium, *The Trend of Economics* (New York, 1924), Knight's attitude has had a double aspect: in conversation (so to speak) with his fellow economists, admonitory, sceptical, at times even nihilistic; in debate

with unwary practitioners of other disciplines, conservative, constructive, elucidatory—a defensive advocate who wins every time because he never overstates his case. It is difficult to imagine more salutary reading for the cocksure economist than the essay, reprinted in this volume, on "Statics and Dynamics," or for the cocksure critic than the few pages devoted to MacIver's strictures on economics in the essay on "Social Causation" (pp. 143-46).

Secondly, and in my judgment even more important, is his continual insistence on the special nature of the problems of the social sciences, concerned as they are with individuals who are capable of learning and acting on the basis of such learning, rather than with unreflecting entities. No one has so successfully waged war upon the position that "since natural objects are not like men, men must be like natural objects" (p. 122). Yet few have adopted a more catholic approach to social studies in general which, while vigorously rejecting pure positivism, insists continually that "any rational attack upon the problems of knowledge and action, in connection with human and social data, must at least provisionally rest upon a pluralistic conception of the subject matter" (p. 122). We may single out the beautiful essay on "Social Science" with which this part of the series begins, as an example of the positive aspect; the devastating critique of Lundberg (the sociologist, not the economist) with which it ends, of the negative aspect of this attitude.

The papers of the last section, as indicated above, are chiefly concerned with questions relating to purpose and objectives. Indeed it would not be altogether fanciful to regard them as Knightian variations on the theme of the famous Gauguin mural—*"D'où venons-nous? Que sommes-nous? Où allons-nous?"* Somewhat surprisingly, the text of his admirable presidential address is Talleyrand's *"Le seul bon principe est de n'en avoir aucun"* which, even more surprisingly, F.H.K. rewords as "The right principle is to respect all the principles, take them fully into account, and then use *good judgment* as to how far to follow one or another in the case in hand" (p. 256). Not perhaps a very cut and dried solution for any eager souls who, attracted by the title—"The Role of Principles in Economics and Politics"—had turned up hoping for simple guidance; but extraordinarily characteristic of the author, with his salty wit, his candor, his modesty, his hatred of nonsense, his love of truth and his passionate desire—to use his own inveterate habit of quotation marks—"to talk it out" and to give the poor wretched type, man, the one chance in ten that his better perceptions and his powers of reason make possible.

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Economic Commentaries. By DENNIS H. ROBERTSON. (London: Staples Press, Ltd. New York: John de Graff, Inc. 1956. Pp. 174. $3.75.)

With one exception, these "Commentaries" have all been printed before. The exception represents two lectures given in Denmark in 1955 and deals critically with some of the recent developments in price theory.

The ten papers comprising this slender volume have been appropriately divided into two parts. Part I is intended for professional economists and

deals with problems of formal theory: the theory of pricing, the measurability of utility, some issues in interest theory, and "Thoughts on Meeting Some Important Persons," which, as those who read the original article may recall, turn out to be autonomous investment, the Domar-Harrod growth equation, and the idea that saving may generate its own investment—all notions for which Sir Dennis humorously claims some spiritual parentage.

Part II is concerned with broader policy issues: the postwar business cycle, sterling convertibility, wages and inflation, the economist's role in policy recommendations, and the "art of earstroking" (*i.e.*, the use of government persuasion to achieve results which Robertson believes could be better brought about by the working of relatively free markets within an appropriate legal framework).

Virtually all of these papers are lectures, formal addresses, or informal talks to seminar groups. Probably for this reason, the intellectual fare provided by this volume, taken as a whole, is not as substantial as Robertson has provided in some of his other works. But there is still much excellence here in the form of rigorous analysis, keen insights, balanced judgment, penetrating but constructive criticism—combined with the Robertsonian humor and the finest literary style among living economists. It is a very spoiled reader, indeed, who would ask for more.

The four theoretical pieces, dealing with as many separate subjects, have no obvious unifying thread. As the title of the collection suggests, they are critical commentaries on a variety of issues raised in the recent literature. But despite variety of their subject matter, they all reflect one of Robertson's greatest virtues as a theorist and critic. He has a gratifying concern over the commonsense meaning of propositions in theory, and he is prepared to sacrifice some mathematical nicety for a closer connection with the real world. This is strongly apparent in this and his earlier essay on utility; it is evident in his treatment of the compatibility of increasing returns with competitive equilibrium (and elsewhere in the lectures on price theory); and again at various points in the other theoretical papers.

There is a clear unifying theme in the part dealing with policy. Robertson believes firmly in the "doctrine of monetary discipline" and in the need to direct policy toward the objective of price stability. The other side of this coin is that the goal of full employment has been pursued too vigorously and too literally. More broadly, Robertson pleads for a set of economic institutions and policies that will permit economic incentives to work effectively, but within a regime of laws that will minimize the conflict between private gain and social good.

Two bits of verse at the end of the book provide an unexpected bonus for the reader. One is an amusing but cynical piece of doggerel addressed to the author of the Marshall Plan. The other is a delightful bit of nonsense, "The Non-econometrician's Lament," which, when originally presented by the author, temporarily disrupted the otherwise highly sober international conference on business cycles held at Oxford a few years ago.

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Individuals, Groups, and Economic Behavior. By C. ADDISON HICKMAN and MANFORD H. KUHN. (New York: Dryden Press. 1956. Pp. xvii, 266. $4.75.)

This analysis of individual behavior is of considerable interest to economists who are concerned with broadening the theory of human nature on which economic analysis rests. It attempts to show how the economist might apply the concepts and approach of social psychology to guide and supplement his own analysis. The authors explain that, according to the "reference" theory of social psychology, individuals are motivated by attitudes which are determined by social and cultural phenomena and not by innate personal qualities. These attitudes are derived from the roles that people fill in society and from the status which they acquire as members of various groups. The definitions, norms, and values of these groups are internalized in the individual and so become personal or self attitudes.

The social-psychological approach to human nature presents a marked contrast to the psychological approach found in the bulk of past and current economic literature. This latter approach conceives of the individual as some kind of autonomous being who is pitted against a hostile, external society, and for whom groups, institutions, and cultures are essentially restrictive. The newer social-psychological approach to human nature, as outlined in this study, regards the individual as a group product which reflects the values of the larger society and group organizations in which he has membership. It is pointed out in this volume that the explanation of human behavior should run in terms of self attitudes which, in essence, are plans of action. If we are to predict individual behavior, it is necessary to be able to identify, measure, and compare the attitudes which guide the individual in any situation in which he finds himself. Since personal attitudes are relatively fixed, we can find considerable regularity in human behavior even when social structures are changing.

The social-psychological approach is illustrated in this volume in relation to three economic problems: managerial motivation, welfare economics, and economic planning. These three problems are analyzed in terms of the personal attitudes which direct individual behavior in these problem areas. The corporate manager is found to be motivated by his attitudes towards such goals as social prestige, social leadership, and maintenance of the firm as a going concern as well as the goal of profit maximization. From the social-psychological point of view profit maximization is itself only one of the many attitudes which are interiorized in the manager as the result of his various group contacts. Personal satisfaction patterns and views about economic planning and freedom are also found to be reflections of self attitudes which are defined by membership in various social groups. It is asserted by the authors that future progress in analyzing these economic problems depends upon our ability to analyze relevant personal attitudes. The authors call attention to recent progress in the field of social psychology in the identification, measurement, and comparison of self attitudes. It is suggested that the application in the field of economics of the new social-psychological research techniques of scalogram and content analysis should prove to be quite fruitful.

The social-psychological approach presented in this volume is highly significant for two reasons. First, this type of approach readily lends itself to empirical investigation. As we make more improvements in our techniques for analyzing self attitudes, we should get a better understanding of what it is that determines the behavior of businessmen, workers, and consumers. Secondly, this type of psychological approach should stimulate more interdisciplinary investigations since it goes beyond the confines of any one social science. If this volume succeeds in calling attention to promising new leads in research in the field of economic behavior, it will have served a very useful purpose.

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Dundee Economic Essays. Edited by J. K. EASTHAM. (Dundee: The School of Economics. London: The Economists' Bookshop Ltd., distrib. 1955. Pp. 103.)

This small volume was published in commemoration of the 21-year life of the Dundee School of Economics. This institution has now lost its independent existence because of its incorporation into Queens College, Dundee, a part of the University of St. Andrews. Each of the contributors was, at one time or another, connected with the school. No attempt has been made to provide a common theme for the volume, and the individual essays reflect the separate interests of the contributors.

For reasons of personal interest, this reviewer found Duncan Black's paper on Wicksell's principle of taxation to be the most interesting. Wicksell's work in public finance theory remains largely unknown, and any discussion of it is especially welcomed. Black praises Wicksell for extending fiscal theory to include the problem of collective choice, but he is fundamentally critical of Wicksell's positive results. He advances two criticisms, only one of which appears to be valid. The Wicksellian solution is not independent of the order in which the alternatives are presented. Black's second criticism is more questionable. He discusses the Wicksell theory through the use of two-dimensional models in which each level of a given expenditure is associated with a specified distribution of the tax burden. This idea is, however, foreign to Wicksell's treatment. Any number of tax distributions may be assignable to an expenditure item, the particular distribution to be chosen by the qualified majority vote. This being true, the obstinate minority could never do more than remove all taxes from its shoulders; it could not keep an expenditure from being approved.

R. H. Coase examines the little-discussed postal monopoly. His historical discussion is limited to the experience of Great Britain, and it demonstrates convincingly the absence of any economic basis for the establishment of the monopoly. This experience is probably duplicated elsewhere, but Coase wisely makes few generalizations.

In the longest essay of the volume S. G. E. Lythe traces the history of Scottish trade with the Baltic area in the century 1550-1650. Using the Sounds Registers and the Dundee Shipping Lists as his primary sources, Lythe

pieces together what appears to be a reasonably accurate pattern of this trade.

The remaining three essays are in the nature of reviews of theoretical problems. J. K. Eastham explores the relation between interest and profit. He defines interest as the rate paid on money borrowed and profit as the rate of return which equates the willingness to invest with the available investment opportunities. A Schumpeterian entrepreneur is the supplier of investment, securing his monetary resources in turn from the money lenders. J. C. Gilbert reviews Hayek's theory of the trade cycle, and T. H. Silcock discusses advertising costs in monopolistic competition.

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Economic Analysis. By Edmund Whittaker. (New York: John Wiley & Sons. London: Chapman & Hall. 1956. Pp. xiii, 460. $6.50.)

Professor Whittaker has produced a lucid exposition of that body of material which is ordinarily described as intermediate economic theory or advanced economics. His text is divided into two parts, "Principles and Procedures," about 100 pages, and "Applications to the Present Day Economy," about 350 pages.

Part I includes, first, a brief review of the most important definitions encountered in an introductory text, and a discussion of economics as a science and as an art. There follows a chapter on "Interpretation of Experience" in which two- and three-variable analyses are encountered and correlation analysis is explained and demonstrated. This section of the book closes with a chapter on planning, in which program judgments and calculation procedures are considered. Some of the introductory chapters could be eliminated or covered rapidly by any instructor who feels that his students have little need for review.

In Part II Whittaker attempts, along with a very clear explanation of theory, to show the relevance of theory to practice by giving examples or illustrations of the operation of economic principles. Included in this part are mathematical equations of the Walrasian type, two- and three-variable analyses of the work-leisure choice and of consumption and demand. There is a rather lengthy chapter on time preference and investment and there are two chapters on production in which two- and three-variable analyses and problems, location, size of firm and choice of product are treated. These chapters are followed by the theory of the firm during various time periods. Competition, monopoly and monopolistic competition, as well as various degrees of monopsony, are discussed here.

The last three chapters of Part II relate to national income and its determination, fiscal and monetary policies, the distribution of income and, finally, economic progress. These three chapters could be omitted if the instructor wished to confine his attention to microanalysis.

This text is designed to be used by students who have already successfully completed an introductory course in general economics. For an author to determine how difficult to make an advanced text in economics is a thorny problem since the introductory courses vary considerably from one institution

to another. Teachers whose students have had an exceptionally rigorous introductory course may find that parts of *Economic Analysis* are not sufficiently advanced for their purposes. On the other hand, where the first-year course has been presented with less intensive treatment of basic theoretical principles—and this is likely to be true of the large majority of introductory courses—the present text provides a more thoroughgoing analysis of economic principles and one which may be well suited to their needs. For such students the introductory material in the first few chapters of the book should prove helpful as a review of the first year's work and as an introduction to the more advanced material which follows.

In the preface the author states that he hopes his text will contribute to meeting criticisms that little material of practical usefulness is found in textbooks on economic analysis. How successful his text is in attaining this goal may be questioned. While the author uses some examples and illustrations drawn from business experience or from government statistics, many of the numerical examples and graphs are purely hypothetical and are related of necessity to conditions which do not correspond very closely to the realities of the business world. The very abstract nature of economic analysis ordinarily operates to preclude its practical application for business purposes. It may be argued that no text in economic theory should be expected to bridge the gap between theory and the practical problems of the business man. Perhaps a distinction needs to be drawn between "application" in the sense of an illustration of the operation of a certain theory, as in the cases of the corn-hog price ratio and the cobweb theorem which the author cites, and "application" in the sense of the derivation and use of cost, revenue and other data in the short- and long-run operations of a business enterprise.

Regardless of the extent to which this text may be of practical usefulness in business, and that does not seem to be an issue of great importance, it is very clearly written. The tables and graphs are carefully explained and examples of the operation of economic forces in our society are frequently given. Exercises and bibliographies at the end of each chapter will be useful to many instructors and students. The text is organized in such a way that the instructor can select certain chapters or sections and omit others if he does not have time to cover everything or if his students have studied some of the material in the introductory course. All in all this book merits serious consideration by the instructor of an intermediate course in economic analysis.

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Price and Allocation Theory; Income and Employment Theory; Related Empirical Studies; History of Economic Thought

Investeringsverksamhet och sparande. III, *Penningvärdeundersökningen.* By LARS LINDBERGER. Swedish Royal Commission Finance Dept. 1956:10. (Stockholm: Ivar Haeggströms. 1956. Pp. 267.)

Dr. Lindberger's study of investment and saving is one of a series of monographs by young Swedish economists written for a government commission

and covering the various aspects of an economic policy reconciling price stability and full employment. Although presumably commissioned in the hope that they would ultimately be helpful in policy-making, these monographs are designed as academic surveys of a wide range of theoretical and empirical problems, and the *Grundforschung* sometimes overshadows the policy discussion.

This particular volume contains a number of interesting suggestions, but it is not easy reading and its conclusions are somewhat fuzzy. Its principal aim is to sort out some of the available scraps of information about Swedish capital formation and its financial counterparts and to elaborate a theoretical framework for the savings-investment problem in the short and the long run. Fundamental to this analytical discussion is the author's distinction between investments undertaken in the business sector proper, and investments in housing, public utilities and governmental installations. Since housing and public utilities are fairly strictly regulated in Sweden, they are combined with governmental installations in a "public sector," but the difference between "public investments" in this sense and "business investments" is not merely that the former are held in a tighter grip by the authorities. They also differ in the following important respects:

1. Public investments are financed either by taxes or reliance on the capital market, whereas borrowing plays a smaller part in business investment which is largely financed out of business savings.

2. Public investments principally involve construction work (which makes up about 75 per cent of them), but more than two-thirds of business investments normally constitute a demand for machinery and other engineering products.

3. Finally, the capital-output ratio is much lower in the business sector, *i.e.*, the contribution to GNP associated with the investment of one unit of capital in the business sector is considerably higher than the contribution of one unit invested in the public sector. For various reasons this would be expected. For one thing, the public sector is less labor-intensive. But quite apart from this fact, gross returns (gross value-added less labor cost) per unit of capital in the two sectors differ markedly. It is true that the yield on certain public investments (highways, government school and hospital buildings) is not even included in GNP, but even those public investments whose contributions to GNP are included show a very low yield. In Swedish housing, Lindberger estimates that gross returns are no more than 5-6 per cent of replacement value, whereas the gross annual yield in the business sector is 15-16 per cent. The average longevity of capital objects in the public sector is of course greater, but this does not, the author thinks, suffice to explain the difference. However, in the business sector risk assessment is high, and this finds expression in rapid amortization; corporate taxation raises the required prospective yield of new investment; and prices may be kept up by monopolistic policies while in the public sector they are kept down by regulation. These, Lindberger appears to be saying, are differences between the price mechanisms in the two sectors which account for the wide margin between their gross returns.

On the empirical plane, savings and investments usually, as Domar has remarked, turn out to be "stubborn, elusive, and disagreeable," and Lindberger's statistical researches fully confirm this opinion at the same time that they testify to his intimate familiarity with the Swedish material and its shortcomings. He revises the previous estimates of the composition of Swedish savings in postwar years by attempting a new approach to the problem of (corporate and noncorporate) business savings. In the absence of comprehensive information about corporate profits, earlier estimates for years prior to 1950 derived business savings as a residual category. Lindberger's estimate, on the other hand, is based on an inspection of the "net liquidity position" of the business sector, *i.e.*, the sum of cash and net claims on other sectors. If correctly assessed, and adjusted for new equity a decline in this external balance (*i.e.*, increased indebtedness) should measure the excess of gross business investment over gross business savings. The results are strikingly at variance with earlier calculations: for the period 1945-51 Lindberger estimates gross business savings at some 75 per cent of business investments, whereas according to the earlier figures they substantially exceeded the volume of business investments. The gaps in the material would terrify a less confident computer, and some of the necessary guesses are pretty rough, but they may be as good as any.

To outsiders, however, the theoretical part is of greater interest. The author examines first the problems raised by long-run tendencies to over- or underinvestment and the consequences of policies which affect the distribution of investment between the public and the business sectors. That a shift of investment toward the business sector and away from the public sector would increase GNP—in accordance with what has been said about the marginal productivity of capital in these sectors—is one of Lindberger's basic assumptions in these arguments. But the implications of such an increase are not obvious in view of the peculiarities of the price mechanism which are assumed to account for the difference between the yields of capital. At any rate the GNP would in such circumstances seem a dubious criterion of welfare. But then the author's chief concern, even in growth problems, is with stability of prices and employment.

The discussion of the determinants of investment is rather more clear-cut. Broadly speaking, it is suggested that the acceleration principle may be applicable to public investments, but that investments in the business sector are determined largely by the volume of business savings. As to the first proposition, it is true that empirical tests of the acceleration principle have generally led to negative results, but the a priori likelihood of positive findings is naturally greatest in industries with relatively stable demand and low excess capacity. In such industries, changes in demand that do take place are more likely to be regarded as permanent, and investment is more likely to result than in industries which are conditioned to, and which disregard, erratic short-run fluctuations in demand. The housing industry may behave differently in different countries, but Lindberger finds (by simple inspection) good agreement between changes in demand and the construction of new housing in Sweden in 1927-1941. For power installations, a similar but less pronounced relationship between fluctuations in capacity utilization and expansion seems

to prevail, although long construction periods and planning horizons obviously reduce the influence of short-run changes in demand.

That business liquidity is a contributory determinant of investment is not a new proposition, but it is argued here with unusual emphasis. The a priori case is familiar: a firm's credit line is bound to be limited; management may be reluctant to increase fixed debt; the floating of equity—particularly in view of corporate taxation—requires prohibitively high returns. Conversely, risk-free opportunities for outside investment of cash resources are likely to seem less attractive than internal expansion. A "risk barrier" determined by the firm's net indebtedness might be such that investment projects capable of realization within this barrier will be undertaken almost irrespective of the rate of interest, while investment projects that cannot be thus financed will not come about regardless of how low the rate of interest falls.

Lindberger suggests that it might realistically be expected that in the course of a period of at least three or four years gross investment in the business sector (exclusive of inventory investment to which little attention is given) will reach a level of, say, 110-130 per cent of gross business savings. American figures since the 'twenties suggest a close agreement, except for the war years, between movements in gross corporate savings and corporate investment (exclusive of inventory). The Swedish material is more limited, but it appears that in 1950-54 investment in fixed equipment fluctuated around a level of 125 per cent of the level of business savings. The degree of self-financing varied considerably from industry to industry and even more from firm to firm. This is unfortunate in view of the fact that much of the argument is based on assumptions about the behavior of the firm, and the situation is not entirely saved by the author's attempt to add the unconvincing suggestion that aggregate investment may also be tied to aggregate savings by a tendency on the part of the credit market to resist large increases in *net* lending to the business sector.

The possibility that business savings actually represent a more passive element is summarily rejected. That individual firms would be able to adjust their savings to their investment needs by manipulating dividends, wages or prices may, as the author says, be fairly unlikely, but the serious objection that an increase of aggregate investment would expand business profits and savings in a roughly proportional measure is passed off rather too quickly. The decisive argument, we are told, is that savings lead investment at the turning points, but this lead is not obvious, nor would it be conclusive evidence. Lindberger's material is of course inadequate for a decision—it is not incompatible with his suggestion, but then it hardly contradicts any hypothesis. And the difficulty about his a priori claims for the strategic role of business savings is that it is far from clear what precisely he does claim. That financing opportunities affect investment decisions is not in doubt, but the formulation of their role seems a delicate task, and to make them sole determinants of the volume of investment is probably going too far. What, one asks, is the story behind those 10 or 20 per cent of business investments which are not financed out of internal funds? Why should they move in consonance with the volume of business savings and why not—more plausibly—in opposition? (If depreciation expenses are excluded on the savings side and

replacement investment on the investment side, as presumably subject to somewhat different considerations, the share of *net* business investment which is externally financed would be even greater, particularly if depreciation expenses normally exceed replacement in an expanding economy.) And what is the significance of the empirical ratio between investment and savings—is it founded in some average preferred ratio between internal and external capital on the part of managements or is it the resultant of forces on the supply side of the credit market? And above all, is it not likely that the relative role of liquidity in investment decisions depends on the phase of the cycle? This would seem to be the conclusion of Meyer and Kuh in their statistical study of investment by manufacturing firms in the United States: they found capacity pressure a reasonable explanation of investment in an inflationary period but suggest that liquidity is more influential in a stable or deflationary situation.[1]

The consumption function has held the center of the stage for some time, and with profitable results. The determinants of investment, by comparison, remain obscure. Lindberger's interesting study poses the problem provocatively but in the end shows mainly how much there still is to do.

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[1] John Meyer and Edwin Kuh, "Acceleration and Related Theories of Investment: An Empirical Inquiry," *Rev. Econ. Stat.*, Aug. 1955, XXXVII, 217-30.

Consumer Expectations, 1953–1956. By GEORGE KATONA and EVA MUELLER. (Ann Arbor: The Survey Research Center, University of Michigan. 1956. Pp. 143. $3.50.)

In this book, the major findings of five interview surveys relating to recent changes in consumer attitudes and expectations, made during 1953–56 by the Survey Research Center, are brought together and supplemented by additional material. The authors mention several objectives. In addition to extending the understanding of the Center's approach to economic research, they wish to show how uncertainty regarding future consumer spending can be reduced and to help to clarify the role of consumer attitudes in the business cycle. They also wish to determine whether the influence of psychological factors on consumer spending found during the Korean war period and reported in their study, *Consumer Attitudes and Demand, 1950–52*, also occurs in time of peace.

The authors present a variety of evidence that supports their thesis that consumer demand is a function of willingness to buy as well as of ability to buy. By means of responses to attitudinal questions, they gauge consumers' willingness to make expenditures and compare the results from different surveys to determine changes in attitudes. From data contained in the *Economic Report of the President*, January 1956, and survey data relating to consumer expenditures in 1954, the authors found that consumer spending may change before income or prices. They also found that consumer attitudes may change independently of changes in income or price levels. On the basis of these and other findings, they conclude that consumer attitudes can be regarded as indications of consumer action and that consumer demand need not remain unpredictable.

Data collected during the recovery in 1954 seemed to the authors to indicate that changes in consumer spending in times of peace as well as in a period characterized by military developments and inflation are related to changes in consumer attitudes and expectations. Attitudinal evidence to support this conclusion was found in the desire of consumers in the recovery in 1954 to upgrade their stocks of durable goods and living accommodations and also in the rising aspirations of consumers resulting from success in achieving improved levels of living.

The study starts with the recovery of 1954 for which the Center had more extensive data than for the 1953 recession. In Chapters 2 and 3, frequency distributions constructed from data obtained at different times from consumer responses relating to their attitudes toward personal finances, national business conditions, the general outlook, and intentions of purchasing durable goods are compared. In Chapters 4 and 5, data showing consumers' intentions of purchasing automobiles and residential construction are related to aggregate demands for these items. In Chapter 6, a composite index of consumer attitudes toward personal finances, economic conditions, and buying intentions is constructed and compared with measures of change in consumer spending. In Chapter 7, the role of consumers in recent economic fluctuations is considered. The appendices contain tables that show differences in attitudes among income, occupational, and age groups and a statement of the methods used in periodic surveys.

Persons working in a wide range of fields will be interested in the findings of this study since they represent a threat to the widely accepted positions of income, price levels, and assets as determinants of consumer spending. For beginning students of economics, the study provides a useful medium through which to acquaint themselves with the survey approach of the Center. It also affords advanced students an opportunity to learn of the progress of the Center in its approach to economic research and to evaluate its methods and work. The authors' statement, that at a later stage of research the predictive value of additudinal indicators may be extended, will offer some encouragement to economists who question the usefulness of traditional theories of consumer choice even though the authors state that "the origin of changes in consumer attitudes is still shrouded in uncertainty."

The most serious questions relating to this type of study concern imperfections of survey methods, such as errors of sampling and response, inability to measure certain qualitative influences, and the effects of the interaction of attitudes, for which no remedies have yet been developed. Among the decisions of the authors that seem open to some question are those relating to the size of the samples drawn in the periodic surveys; the omission of military posts, institutions, hotels, and large rooming houses from the universe studied; and the failure to state which variances are statistically significant, thus requiring the reader to determine the significance for himself by referring to a table of sampling errors.

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Dynamic Factors in Industrial Productivity. By SEYMOUR MELMAN. (New York: John Wiley. 1956. Pp. xiii, 238. $4.75.)

The thesis of this book may be stated simply. It is that the degree of mechanization in industry depends on the ratio of per-unit labor cost to per-unit machine cost. Labor productivity (defined as output per production-worker man-hour), in turn, is governed by the degree of mechanization, and thus by "alternative" labor and machine cost.

Mr. Melman has marshalled an impressive array of evidence to support his contention. His first cases relate to materials-handling operations in the British motor vehicle and associated industries, for which he computes ratios of average hourly earnings to hourly machine costs at various rates of operation (although he fails to include a return on investment as part of the machine cost—*cf.* p. 37). Between 1948 and 1950 substantial increases in the number of machine-hours equal in cost to a man-hour were associated with a presumably significant increase in the mechanization of materials-handling operations.

The author then makes a similar analysis of total manufacturing in both the United Kingdom (1924-1950) and the United States (1899-1950), substituting horsepower per production worker as a measure of degree of mechanization and relative costs of kilowatt-hours and man-hours for relative labor and capital costs. In both countries, there were persistent upward trends in output per man-hour, horsepower per production worker, and average hourly earnings relative to cost per kilowatt-hour. Emboldened by this apparent confirmation of his thesis, Melman goes further and relates output per man-hour to number of kilowatt-hours purchasable at the cost of a man-hour of industrial labor in nine countries for one or more of the years since 1924. The correlation coefficient is .88, and Melman infers that "by far the greater part of the observed variation in labor productivity was accounted for by the alternative cost ratios" (p. 147).

Installed horsepower per production worker and cost per kilowatt-hour are admittedly crude measures of mechanization and machine cost. Machine-hour cost has probably risen considerably more than kilowatt-hour cost since productivity in the electric utilities has grown faster than productivity in the machinery industries. But there is no reason to argue over the broad picture. It seems reasonable to suppose (and other studies confirm) that capital per worker in industrial countries has increased, while relative capital cost has fallen, partly due to the very fact that capital stocks have grown faster than labor input, while productivity gains have resulted in a decline in prices of capital goods relative to wage rates.

The chief objection to Melman's book is the oversimplification involved in his hypothesis and presentation of evidence. Changes or differences in relative factor prices are indeed logically the prime factor behind changes or differences in factor combinations and thus in factor substitution (movements along given production isoquants). But relative factor prices do not explain technical advance as such (shifts in the isoquants), for this must be traced to the dynamic forces behind innovation generally, which Melman largely ignores.

I believe Melman to be in error in attributing "by far the greater part" of changes or differences in output per man-hour to relative factor price influences. Research at the National Bureau of Economic Research indicates that factor substitution is a minor source of growth in output per man-hour. Melman's result stems from the fact that factor substitutions have generally been associated with changes in productive efficiency for the sufficient reason that technological advance has served to reduce the costs of capital goods relative to wage-rates and has thus encouraged factor substitutions. Failure to recognize this intercorrelation leads the author to attribute most of the advances in productivity to changes in "alternative costs" and to omit a frontal analysis of the more fundamental forces behind technological progress.

Even as evidence that businessmen tend to choose the least-cost combination of inputs, Melman's data are partial since he largely confines himself to production workers and machines. He does note that the trend in both the United Kingdom and the United States towards an increasing ratio of administrative to production workers makes changes in output per production worker man-hour an overstatement of productivity advance. It also reduces the apparent rate of substitution of capital for labor. Factor substitutions would turn out to be still less if all forms of capital had systematically been accounted for. Other investigations show, as Melman's case studies imply, that mechanization has produced savings in plant and inventories per unit of output.

Management is, of course, concerned with innovation and factor substitution as a means of effecting net savings in inputs generally and reducing total costs per unit of output. Melman recognizes this by noting that productivity (output per man-hour) . . . "was rarely an explicit category in their handling of production problems. Productivity levels have been, primarily, by-products of management's business decision making" (p. 165). The surprising thing is that economic statisticians continue to use output per man-hour as a unique efficiency measure. The relationship of output to total inputs, in real terms, affords a better measure of changes in productive efficiency, and it permits the isolation and separate study of factor substitutions. Such a distinction would have made Melman's study more enlightening.

Nevertheless, the book is well written and contains useful materials. It will be of value to the student of industrial progress if he has in mind the broad theoretical framework necessary to counter Melman's preoccupation with relative factor prices.

John W. Kendrick

George Washington University

Principi di Dinamica Economica. By Pietro Manes. (Padua: CEDAM. 1956. Pp. xxiii, 271. L.1500.)

This is a provocative book that combines a number of penetrating and original insights with some laborious reformulations of trite and not always relevant propositions. The author introduces himself as having recently had postgraduate training in the United States which, it appears, served to confirm his earlier misgivings about the "scientific adequacy of modern economic

doctrine." So grave became these doubts that Manes felt obliged to choose—though this should perhaps be taken merely as a flourish of rhetoric—between chucking his profession entirely and undertaking to rehabilitate it. The book is, of course, evidence that he chose the latter alternative. *Dinamica economica* is therefore another treatise written in the heroic tradition of the "reconstructors" of economic science who, from Smith onward, have striven to free economics of its incrustation of errors or, like Jevons, shunt it back on a right track.

Manes ascribes the predictive ineffectualness of economics to two kinds of persistent errors. One sort is terminological. Words like demand, supply, value, *et al.* should have, but do not have, unequivocal meanings. The loose usage they get is in itself enough to insure a host of inconsistencies and misunderstandings: "No earthquake was needed at Babel; God's purpose was sufficiently served by the confusion of tongues." Passages from Marshall, Keynes, the United Nations *World Economic Reports* and other eminent sources are shown to be glaringly self-contradictory except on the assumption that somewhere a tacit redefinition of a term has slipped in.

Chiefly, says Manes, the conspicuous inability of economists to forecast within any reasonable tolerance the course of future events (which is the only real reason for studying economics at all) comes from trying to solve inherently dynamic problems with an apparatus suitable only for static analysis. The prevalence of this fatal habit he attributes to the (spurious) preciseness and consequent popularity of the marginal technique. Popular belief notwithstanding, we are told, the so-called classical economists were mainly concerned with the probable causes and effects of economic changes, not with equilibrium conditions; they were not at all static-minded and never overlooked the all-important element of time. But with the advent of marginalism economists became, in a sense, prisoners of their own plane geometry. Lacking dimensions enough to include in their analyses time and therefore the reflexive consequences of initial changes, the conclusions they could reach through a scrutiny of (largely hypothetical) curves—*e.g.*, of demand and supply and their derivatives—were bound to be mostly wrong. To attempt to hedge by introducing such expedients as unexplained "shifts" or translations is not only bad mathematics (here the author is mistaken) but bad science also (which is true). Marginalism, which greatly illuminated the special and relatively unimportant case of partial equilibrium, has set back by several generations the main business of economics, which is to foster some understanding of a dynamic society. Furthermore, most of the terminological confusion noted above stems from this misuse of the methods of statics, which has saturated the literature of economics with such puzzlers as "intensification of demand," etc., in addition to stultifying dynamic theory. Even Keynes, says Manes, erred in confusing flows with quantities, as for example in $Y = C + I$. It may be inferred that the author would have no objection to a statement of the form $\Delta Y = \Delta C + \Delta I$ or, since time is of course the referent, $\frac{\Delta Y}{\Delta t} = \frac{\Delta C}{\Delta t} + \frac{\Delta I}{\Delta t}$.

The author's own contribution to the theory of economic dynamics really

begins with Chapter 11. It turns out to be couched entirely in terms of aggregates, and a business economist will look in vain for hints helpful in estimating the market for what's-its in 1958. This part of the book offers many interesting and subtle graphs and equations. But except for stressing the critical importance of time-lags and asserting that money is not always neutral, it has not much to say to policy-makers. The book is for theorists, and theorists should find in it much to interest them.

Consistent with the author's view of what is mainly wrong with economics, about a hundred earlier pages are devoted to defining Consumption, Cost, Value, Demand, etc., and to justifying the definitions by many appeals to logic, biology, psychology and the calculus. Some of the "proofs" are carried almost to Walrasian length. Most people would willingly stipulate (as lawyers say) that man has a finite life and that he needs some minimum amount of rest. Thus it hardly seems necessary to call these respectively T and T_{rm} and deduce that man's productive or "food-gathering" capacity T_{am} is subject to the restriction that $T_{am} \leqslant (T - T_{rm})$. It is somewhat disconcerting to find so much of this formalism—the whole accompanied by a running literal exposition—in a book whose author (p. xiv ff.) deplores the prideful mathematicism of other economists who, he says, commonly mistake the language of mathematics for the thoughts it can embody. But Italy is by way of being the *locus classicus* of mathematoid economics, and perhaps Dr. Manes hesitated to differentiate his product too sharply from the going design.

On the whole, it appears to this reviewer that the author of *Dinamica Economica* overstates his case. It may be that he is not entirely on top of developments in recent years; no mention is made of the work of Harrod, Kalecki, and others, or of the voluminous literature on the growth of underdeveloped countries, or of Henry L. Moore's early *Synthetic Economics*. Manes' quarrel is really with the standard type of oversimplified analysis presented in textbooks. But the freshness and originality that characterize much of *Dinamica Economica* mark its author as a writer of considerable promise, and on balance should make the book rewarding reading for persons with a substantial interest in economic theory.

STUART HALL

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The Economics of Repressed Inflation. By H. K. CHARLESWORTH. (New York: Macmillan. 1956. Pp. 126. $2.50.)

This well-written and concise volume "seeks the answers to two main questions: first, What is the nature of repressed inflation? and, second, What are the effects of repressed inflation on the supply of factors of production, on the consumer's maximization of total satisfactions and on the firm and industry?" Whereas most studies of inflation are on the macro level, the unique character of this book is its concern for the microeconomic level.

To Charlesworth, repressed inflation consists of the introduction of limited degrees of price control and rationing into an otherwise free economy. In time of peace, he assumes a democratic society can only partially control its economy. The labor market and certain nonessential consumer

markets must remain basically free; however, without the self-restraint of wartime emergency conditions, the author argues, inflationary pressures will find their outlets in these two uncontrolled sectors with the following results: (1) The more wages are controlled, the more leisure tends to be substituted for work; (2) When consumer goods are rationed and price-controlled, a shift to unrationed but lower-preference goods occurs; work incentives decline and savings may *decrease;* real income is redistributed in favor of lower-income groups; (3) When productive factors are allocated by government, bottlenecks may appear; inefficient industries are protected and product quality may decline; (4) Some consequences for firm and industry are these: The supply curve shifts to the left; demand increases (and is less elastic) due to the decline in the marginal utility of money; profits are high and a tendency to overinvestment may appear. Should this latter occur, Charlesworth predicts, government would probably control all investment, which could lead to a monopolization and cartelization of the economy by government and business.

What the author is saying in other terms is that the microeconomic consequences of partially repressed inflation are analytically similar to those of monopoly—resources are misallocated, real income and wealth are shifted, and income stability is enhanced. These conclusions follow inevitably from Charlesworth's methodological device of introducing rigidities into the competitive model and then comparing the results with this model.

Such a comparison probably overstates the degree to which policies of repressed inflation misallocate resources in the real world. This is true not only because the competitive model is a straw man, but because a free economy faced with inflation may have to choose between alternatives among which repressed inflation may be the least disagreeable.

Charlesworth's book deserves the attention of students of inflation. It is a path-breaking study of a neglected, but exceedingly important area of economics. Also, it succeeds in relating macro- to microeconomics when it discusses the impact of inflation on particular markets. It relates perfect and imperfect markets in novel and technically interesting ways. Beyond this, it contributes to the sparse literature on black markets. Since the book is brief, not too difficult, and deals on both levels of economic analysis, it could well be used for advanced undergraduates or first-year graduate students in general theory courses.

ROBERT FREEDMAN, JR.

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Economic History; Economic Development; National Economies

Los Obstáculos al Desarrollo Económico. By HORACIO FLORES DE LA PEÑA. (México: Universidad Nacional Autónoma de México. 1955. Pp. 168.)

This short book on the obstacles to economic development crystallizes the widespread thinking on economic growth which prevails in government and professional circles of many economically underdeveloped countries. The generally well-knit analysis of the author, a young Mexican government econo-

mist and professor in the school of economics of the University of Mexico, leads him to conclude that successful and balanced economic development can be carried out only with a major participation of government in the economic life of the community.

Flores de la Peña bases his thesis on three main tenets concerning the structure of an underdeveloped area: highly inelastic supply, great concentration of personal incomes, and scarcity of entrepreneurship. In underdeveloped areas, according to this thesis, various economic and institutional factors account for a low elasticity of supply, particularly with respect to agricultural products. Therefore, increases in money incomes will tend to be inflationary, with strong pressure on the demand for food products of which generally there is a deficit, and whose demand tends to have a high income elasticity. Because of this, price rises, being faster than the increase in money wages, will lead to a further concentration in the income distribution which already is highly unequal. The rise of money incomes due to occupational shifts from low to high productivity sectors will raise real national income—and also real per capita income if population growth is not significant—but because of the inelastic supply conditions, average real wages paid in the various sectors of the economy will fall. This means a higher profit share and a consequent increase in income concentration. In turn, the inequality of the personal income distribution represents a lower effective demand for manufactured and processed goods and thus depresses private investments.

The higher profit share, Flores de la Peña states, does not give rise to investment in those productive fields which are desirable from the point of view of economic development, but the investment that does take place is directed to satisfying the consumption pattern of the upper-income groups where the purchasing power is concentrated. This investment does not relieve the inflationary pressure on food items or basic manufactured goods and therefore does not contribute to raising the general level of living.

Foreign trade does not help much because of a chronic disequilibrium of the balance of payments due to the swollen luxury import demand of the groups where income is concentrated. Nor can foreign investment solve the growth problem because the interests of the foreign investor seldom coincide with the national needs of the underdeveloped community.

Thus, according to the author's model, "underdevelopment" essentially means stagnation. The clear implication is that if significant economic development is to take place, the government must concern itself directly with the redistribution of income to create a greater effective demand and to increase investment in industry and agriculture.

In putting the emphasis on the concentration of personal incomes as the fundamental obstacle to economic development, the book represents a strong reaction to traditional growth theory which often does not consider this aspect at all. From the point of view of the author as well as of a good part of professional opinion in present-day underdeveloped areas, the growth problems of today are completely set apart from those of the last century. In last-century development (of the United States, Great Britain or The Netherlands, for instance), the argument goes, the personal income distribution did not

matter very much because colonial expansion or an expanding frontier and immigration gave rise to a mass market. Today's economic growth, concludes the author, depends much more on a high consumption level as the basis of a dynamic effective demand.

This thinking makes sense only because of the author's hypothesis that investment in underdeveloped areas is nearly all induced by consumption and not limited by the volume of savings. While it is probably true that domestic private investment in these areas is less dependent upon the magnitude of savings than is usually thought, Flores de la Peña's arguments are not convincing, principally because of his failure to distinguish between voluntary and forced savings.

It is possible that, because of the great concentration of personal incomes, private investment in an underdeveloped country will be oriented towards a market which caters to the demand of the upper-income groups, as he asserts. I am not so sure, however, that this is such a deterrent to economic growth as it is made out to be. In the absence of any other stimulant this might be a good start of the development process. Once per capita incomes rise to the levels where effective demand of enough of the population reaches beyond subsistence needs, a mass market for processed consumer goods becomes effective even though the concentration of income might not have lessened. Private investment will then find its way into the processing and manufacturing industries which cater to the mass market.

In any case, as per capita national income rises, the degree of the inequality of the income distribution would lose significance in the effective demand argument. In the early stages of development a rising profit share is natural and as a matter of fact is an indispensable incentive if economic progress in nations poor in natural resources is to be carried by private enterprise. But this surely does not prevent wages and salaries from increasing. As long as the wage bill rises without sharp population increases, the domestic market will also increase. What matters is not so much how equal the income distribution is, as whether the distribution as a whole is moving up the income scale.

Flores de la Peña does not consider reliance upon only an indirect role for government in economic growth. He deems the giving of incentives for private investment as too costly because, entrepreneurship being absent or scarce, there is little to stimulate. In assigning to the state the chief responsibility for capital formation he is not worried about financing because, by again ignoring the difference between voluntary and forced savings, he discounts the inflationary effects of government deficits. He believes that inflation can be averted if the state concentrates on investments with short gestation periods. This hardly seems an adequate anti-inflation remedy and, moreover, would appear to jeopardize seriously the community's development effort. For, if this principle is adhered to, such traditional and basic government investments as roads, port development, other transportation, communications and utility development, not to speak of education, and health services, would have to be avoided.

At any rate, in giving to the state the tasks of investing on the one hand

and redistributing personal incomes to raise effective demand on the other, Flores de la Peña puts great demands on the skill, wisdom and entrepreneurial capacity of the government. It stands to reason that the capacity of governments of lesser developed areas generally is more limited than in the economically more advanced countries for the same reasons that the community is "underdeveloped." It certainly cannot be assumed that all efficient elements will concentrate in government while the rest of the economy suffers from inertia and lack of enterprise. The experience up to now also has not been very encouraging. Quite a few governments of underdeveloped countries found themselves with substantial investable funds on their hands during and at the termination of the second world war, but many of them bungled the opportunity. It is just the ineffectiveness of governments which fail to capture the people's imagination and lack their confidence that is one basic obstacle to economic development.

Much of the good reasoning of the book is weakened by the author's preconceptions. Some loose and fuzzy thinking has crept into the analysis because he is so anxious to make his point. Nevertheless, the book should be of interest to American and European economists because of its forceful and generally high-level argument for government direction of economic development presented from the point of view of the growth country.

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Population Growth and Levels of Consumption. By HORACE BELSHAW. (New York: Institute of Pacific Relations. 1956. Pp. xxix, 223. $4.50.)

This is an interesting addition to the literature of economic development by a prominent Australian economist experienced in the problems arising from the development efforts of the countries of Asia. Because of his experience it is a valuable contribution to the increasing literature in this area, although its primary value arises more from the author's interpretation of present theoretical efforts in this area of research, and in their applicability, than in its own contribution to theory.

It begins with a summary of the population situation in the countries of Asia. This is largely a review of existing literature and statistical data, as background for the author's own analysis, and points out the difficulties that increasing population presents to any effort to raise levels of consumption in areas which are characterized by a Malthusian population situation. A key point, which the author does not mention directly, is that with a rapid rate of population increase the total consumption requirements for simply maintaining unproductive members of the society at former consumption levels go up as the proportion of the population in the "below working age" group rises. This reduces the resources available for investment either in the agricultural or industrial sector of the country concerned.

Following this, Belshaw discusses the problem of investment in the underdeveloped countries in terms of the relationship between changes in labor supply and capital and their effects upon factor returns. He uses the Cobb-

Douglas production function for this analysis, and reaches the conclusion that there will be diminishing factor returns to population growth in these overpopulated countries, and that economies of scale are unlikely if increases in output result from increases in labor with a less than proportionate increase in capital. This is the expected conclusion, but one wonders as to the value of the Cobb-Douglas equation, apart from its use as shorthand, as a basis for this conclusion, since data respecting the variables in the countries concerned are absent. This logically led to the discussion of increased investment, capital-output ratios (reversed and called capital coefficients in this volume) and investment criteria. Belshaw comes out on the side of less capital-intensive projects in the early stages of development, favoring a development sequence of light consumer goods→medium→heavy industries, though recognizing the possible necessity of investment in capital-intensive social overhead. The reasons for favoring this sequence lie not only in the desirability of maximizing output with minimum use of scarce capital resources, but also of obtaining a wider distribution of income, greater conformity to socio-political requirements, greater geographic distribution of development and in consequence lower social overhead, and providing a stimulus to dispersed centers of leadership. As a corollary he favors stress upon labor-intensive investment projects, such as roads in villages, and strongly advocates expansion of the community-projects approach.

He concludes this general discussion by pointing out the necessity of increasing the rate of capital formation, discussing various social and institutional organizations to achieve this, as well as the desirability of increasing the rate of innovation in a developing, overpopulated country. Innovations are defined broadly—including not only those of a narrowly economic character, but also social, organizational, and political changes, which by altering the traditional methods of functioning in various parts of society will contribute to achieving the goals of greater capital formation, increased effectiveness of investment, and ultimately higher levels of consumption. Adoption of this broad definition inevitably results in a treatment of this subject that is quite general.

This discussion is finally used as a basis for certain specific recommendations with respect to international aid, both in regard to capital assistance and technical assistance, and the relationship between these in terms both of suppliers and users. The points made are specific and appropriate and should be of value in maximizing effectiveness of aid both for the supplying agencies and in the countries being assisted.

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Foreign Trade and Industrial Development of China: An Historical and Integrated Analysis Through 1948. By Yu-Kwei Cheng. (Washington: University Press of Washington, D.C. 1956. Pp. xi, 278. $7.00.)

This volume is an important contribution to Chinese economic studies. While the current interest in this field centers on the development in Com-

munist China, the author by bringing his analysis to bear upon the period from the 1930's to 1948 succeeds in closing some of the gaps in our knowledge of this period that is so necessary to a proper understanding and evaluation of the later economic revolution.

Having been closely connected with the Chinese government for over a decade, he is able to use such unpublished data as the wartime and postwar production statistics collected by the Ministry of Economic Affairs and the National Resources Commission, the wartime foreign trade returns of occupied China collected by the Japanese authorities, and the full report to the Chinese government by a group of Japanese industrial experts on Japanese production and investments in Manchuria and subsequent Soviet removals and damages. All these enhance our knowledge, but one is left with the regret that even Mr. Cheng has not been able to get hold of the industrial production data pertaining to occupied China during the war years. It may also be said that all the Chinese government statistics used in this book by no means give a complete production picture of modern industry, since reports were required only of those factories employing at least thirty workers as well as mechanical power.

The contribution of the book is found as much in the way the analysis is handled as in the presentation of data not hitherto available. For example, one major problem of analyzing the production and trade statistics for the wartime and postwar periods is that of valuation. There were different currencies circulating in various parts of China during the war, all subject to different degrees of inflation, and shortly after the war there was hyperinflation throughout the country. Cheng attacks the problem by undertaking the laborious task of estimating the value of industrial production of these two periods at prewar Chinese wholesale prices, and converting the trade returns of various areas into United States dollars at carefully considered exchange rates. In the trade analysis, besides the usual discussion of the balance of trade, composition of trade by economic classes and principal items, and direction of trade, a painstaking study of the foreign trade by the mainland regions of China (Manchuria, North, Central, and South) is made, thereby furthering our appreciation of the economic structure of the country. The author calls his analysis "integrated," perhaps in the sense that he generally regards the foreign trade development, with exceptions in particular cases, to be a manifestation, if not the effect, of domestic industrial change.

The book is divided into 11 chapters, with 8 statistical appendices. The treatment follows a chronological order. The first two chapters of 26 pages covering the whole historical period up to 1913 are introductory in nature, with emphasis on the unique institutional setting created mostly by the "unequal" treaties for modern industrial and foreign trade development. The next three chapters deal with the period from 1913 to 1936, the major discussion being devoted to the tariff levels after 1929 when China attained a certain degree of tariff autonomy, and to the problem of silver movements. Another two chapters are given to the development in free China and occupied China during the war years from 1937 to 1945. This is followed by a chapter on postwar development up to 1948 and a special chapter on Man-

churia. Greater clarity would have been gained if the discussion of Manchuria had come before instead of after that on postwar development of the whole of China. The book ends with a chapter on the problems and prospects of China's industrialization and foreign trade, the subject being discussed "in the light of a democratic welfare state" (p. 227), purposely with no reference to the events now taking place in Communist China.

In proper historical perspective one wonders if the author is right in labeling the period from the 1920's to 1937 as a period of "stagnation of Chinese industrialization" (p. 37ff). Without going into details it may be said that during the six years prior to the outbreak of the war in 1937 the Chinese government for the first time since 1895 took the initiative in the economic development of the country and made such progress as to prompt the Japanese militarists to strike without further delay. This fact the author recognizes in various other places in the book (*e.g.*, pp. 42, 212-13, 215). It is not so important how much manufacturing industry and road and railway mileage there were in the mid-'thirties as how they compared with those of the preceding years. A carefully documented chapter on these six years is needed to further our understanding of the postwar plight of the National government that quickly led to its collapse on the mainland.

While competent in handling historical data, the author ventures into certain theoretical matters that are not handled entirely satisfactorily. For example, the measurements of the restrictive effects on trade of the Chinese tariff are formulated (pp. 58ff) in more positive terms than anyone familiar with the pitfalls of this kind of undertaking would be likely to venture. In the discussion of silver movements, while agreeing with the present reviewer in taking the "purchasing power parity theory of silver flow" as an explanation of the specie movements, the author, by stressing the role of foreign investments as well as immigrant remittances, does not see how the silver movements could have "any appreciable effect in restoring trade equilibrium" (p. 83). This dissent seems to be due to a confusion between an historical situation, in which the balance of international payments is always in balance, regardless of the weight assigned to the different items therein, and the theoretical issue as to the trade mechanism by which the disparity in the purchasing power of silver between China and the West would work itself out in the absence of extraneous factors, thus proving Taussig's dictum that international trade is fundamentally a matter of barter. A final example may be found in the author's repudiation of the comparative advantage theory as being "based on assumptions which, on closer analysis, have been justified only partially or not at all" (p. 228). In his enthusiasm for trade control as a means of encouraging economic development, he has no use for and makes no reference to the usual infant-industry and national defense arguments at all. Hence, the whole concept of effective utilization of resources in the development process is missed. Fortunately, none of these matters, which are really ancillary to the main argument of the book, affects the important contribution it makes.

CHOH-MING LI

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Forces et faiblesses de l'économie française 1945-1956. By JEAN-MARCEL JEANNENEY. (Paris: Armand Colin. 1956. Pp. 340.)

The author of this scholarly, incisive study of the French metropolitan economy during the past decade is professor of comparative social economics in the Faculty of Law at the University of Paris and codirector of economic research at the Fondation Nationale des Sciences Politiques. He has written on the economics of electricity and retail trade in Western Europe and is the editor of a forthcoming volume: *Tableaux statistiques relatifs a l'économie française et a l'économie mondiale.* This furnishes the statistical basis for the 107 graphs and maps that illuminate the text of the book under review; each of these two works complements the other. The current volume supersedes in part Charles Bettelheim, *Bilan de l'économie française 1919-1946,* with its statistically invalid stagnationist thesis, and supplements the 1951 symposium, Edward M. Earle, ed., *Modern France: Problems of the Third and Fourth Republics,* and the special 1955 number of *Études et Conjuncture: l'Espace économique française* published by the Institut National de la Statistique et des Études Economiques.

Professor Jeanneney's book, although the first-published comprehensive treatise on the French economy during that decisively important reconstruction period 1945-56, will be the definitive work on that subject for years to come. He has based his factual statements on exhaustive statistical and historical research, indicated all his sources, and explained the methods used by himself and his associates in making the almost uniformly valuable graphs and maps. At the same time he has displayed fine analytical and synthetic powers and a rare gift for lucid exposition of a complicated subject matter. In order to reach a wide public, he has given short but clear definitions of important terms at the beginning of each new subject. The author has an awareness of political and social factors that is unusual among even widely trained economists.

Jeanneney opens his volume with two chapters on the demographic and political factors that have affected economic developments since the liberation of France. He rightly holds that strictly economic facts cannot be isolated from population changes and governmental action. The Monnet Plan, the nationalization of various key industries after the war, NATO, and the varying policies on inflation before and after 1952, justify his assertion that economic life is in large measure what government has made of it. He then devotes the major part of the book to the development of French production, agricultural and industrial; the price system; international economic relations; the national income and its distribution; monetary and credit policies in relation to inflation and economic progress. There is also an interesting discussion of some of the important "relatively constant" or slowly changing technological, geographic, social, and cultural elements in the French economy. An epilogue sums up the author's reflections on the economic prospects of France. These last two sections are less fully developed than the main body of the book but offer suggestions for future inquiry as well as mature conclusions.

When the author completed his analysis in January 1956, the crisis over the Suez Canal and the unsettlement over French North Africa had not cast

their dark shadows over French economic conditions. Until some agreement over Middle East and North African problems is reached by the United States, France, and Britain, this situation will not improve. But there may be changes in American policy or British-French economic-military arrangements that will help to confirm Jeanneney in his belief that economic conditions in France have a good chance for long-range improvement. Some of the grounds for his confidence early in 1956 were: (1) the price stability that had been maintained since 1952; (2) the growth of agricultural and industrial production after 1952-53 at rates that proved France had a capacity for production and an ability to progress greater than most experts had deemed likely; (3) a great decrease in the unfavorable balance of trade and an increase in gold and foreign exchange reserves; (4) a stabilization of births at a level that assures a surplus of 300,000 births a year.

The author, however, felt obligated even then to point out some disquieting facts: (1) The improvement in the balance of trade had been achieved by special customs regulations which might provoke reprisals by other countries in a world economic recession. (2) American governmental aid had eased various pressures on the French balance of payments during periods of international tension, but could not be counted on indefinitely. (3) The large deficit in national finances, high prices, and high interest rates threatened to get out of control. He was also concerned as to how public and private investments could be increased so that there would be the same annual increase in production from 1956 on as there had been in 1953-55.

The weakness of the French economy resulting from too limited a supply of capital goods Jeanneney attributes in part to the large number of highly inefficient enterprises in agriculture, industry, and commerce that have survived through state aid and inadequate competition. He favors state aid and guidance to better employment opportunities for displaced peasants, artisans, factory workers, and small shop-keepers. To him rapid economic progress seems best assured through appeals to private initiative and individual interest and through reliance upon the mechanisms and operations of the competitive market. Yet he recognizes the need for state action in two cases especially: (1) to redress the economic hardships flowing from depression and inflation; (2) to promote the growth of production and consumption, long- as well as short-range. He sees the need for the attainment of a greater continuity and harmony in governmental planning than the rapidly shifting governments of France since 1946 have been able to attain. He stresses the need for Frenchmen who are fearful of change to embark upon a bold program of investment in the production of such widely needed consumer goods as housing, food, clothing, household utilities, automobiles. He renounces the dream of France as a great military and colonial power (General de Gaulle's vision of France recapturing its past *gloire*), but believes France may build up an economy of high employment and social welfare. Like other men of good will he hopes France may help other nations, particularly the newly emancipated states of Asia and Africa, to a higher stage of civilization and a greater international harmony.

On questions of fact I have found nothing with which to take issue; on

questions of interpretation and policy I have found much that seemed sound and suggestive: *e.g.*, his correlation of the increase in the birth rate with the increases in prices after the second world war (p. 20), his proposals for fiscal and tax reforms (p. 230 ff.). I sympathize with his wish for a balance between industry and agriculture (p. 65), yet fear that greater difficulties await such an equilibrium than those the author stresses. Each reader will find different points to intrigue him, whether he agrees or disagrees with the diagnoses and proposals presented. In any case, the facts are here given with scrupulous accuracy and admirable clarity.

SIDNEY RATNER

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La zone franc. By F. BLOCH-LAINÉ and others. (Paris: Presses Universitaires de France, for the Bibliothèque de la Science Économique. 1956. Pp. 512. 2.200 fr.)

Rarely is one presented with the opportunity to read a book which is authored by a combination representing both the administrator and the academic economist. It is rarer still, then, to find that the senior author of the present work, and many of his collaborators, combine both of these skills. Professor Bloch-Lainé is not only a professor at the Institut d'Etudes Politiques but is also the President of the Caisse Centrale de la France d'Outre-Mer. As such, he can describe, and in the truest sense report, the economic and political decisions which were taken affecting the French overseas territory. His agency acts as a central bank for many parts of the French Union; it is, in addition, a major lending agency in all parts of the franc area.

The introductory chapter provides a discussion of the nature of a monetary zone and its reasons for being, a description and defense of the plan of the book, and a preview of the book itself. The first of the three principal sections is by far the longest, since, as the authors tell us, there was far more material available on the nature of the monetary and fiscal institutions than on any of the other subjects. Few of the historical or institutional sections, the bulk of the book, suffer from a scanty treatment; on the contrary, both the present-day structures and their antecedents are presented in full detail.

The first section is itself divided into three parts dealing respectively with (1) the nature of the central banking mechanism, the role of the central banks and their historical development, and the inter-relationships between these agencies, (2) the administration of public finances, the administrative and control functions reserved to the central government, and the distribution of expenses between the central government and the local governments; and (3) the organization and distribution of credit, the nature and development of the banking system, and the means of monetary control.

Section II provides a thorough discussion of the operations of a monetary union. There are two parts, those relating to the external aspects, control of foreign exchange, duties and import quotas, the administration of a centralized stock of gold and foreign exchange, and those describing the internal arrangements in a system in which there are a number of central banks, more

than one currency, and the necessity of maintaining complete internal convertibility.

The third and final section is entitled economic solidarity. A discussion of the characteristics of the different economies of the zone is followed by a description of interzone and foreign commerce.

Bloch-Lainé is a central banker. His major theme is that the purposes of the monetary union or franc area can be achieved best by a shift in the control mechanism from the French treasury to the Bank of France. He reasons that for the franc area to survive there must be a complete and immediate opportunity to convert metropolitan francs into territorial francs and vice versa. At the present, the French treasury assures this convertibility through a system of special (extrabudgetary) accounts. Thus, the treasury in effect administers a stabilization fund for the territorial currencies. Bloch-Lainé compares this to the pre-1949 period when the treasury accepted the responsibility for providing francs to the Exchange Stabilization Fund. In both cases, an excess demand for francs can mean additional treasury borrowing at the Bank of France; an excess supply of francs is used by the treasury to cover its regular expenditures. In addition to the disadvantages for monetary administration and the control of inflation, there is the problem of obscuring the precise amount of the flows from the mainland to the territories. In place of the present system, Bloch-Lainé and his collaborators would institute, on the balance sheet of the Bank of France, an account entitled "Avances au Compte de Compensation des monnaies de la zone franc" (p. 371). Just as the 1949 change resulted in clearer information on the nature of advances to the Exchange Stabilization Fund and hence the position of France in relation to foreign countries, this change would more clearly show the position of France in relation to the franc zone. It would, however, call for some change in the operations of the Bank of France which has, since its origin, confined its operation almost wholly to the mainland.

A great effort is made to convince the reader of the interdependence of the area. It is true that the volume of French exports to and imports from the zone is impressive, but likewise the tariff barriers and exchange control mechanism are also impressive. The commercial statistics give little indication of interzone ties among the other members. What appears is a system in which the agricultural and raw material needs of France, developed in the colonies and former colonies, are exchanged for the manufactured products of France.

The student of economic development will certainly find interesting material in the methods of financing the development of the area. Most of this financing is done by France. The tendency is for France's relative share of the investment program to become larger. The members of the zone, however, participate in their own development most often by borrowing from France at low rates of interest. There unfortunately is little discussion of the desirability of such a policy as an alternative to a policy of increased domestic investment.

Enough has been said to indicate that there is a vast amount of material here for the student of economic development and for the general economist. Bloch-Lainé and his associates have succeeded well in their aim of providing

us with a picture of the development of the franc area and its importance for France. It is all the more unfortunate that they neglect several opportunities to provide a more analytic discussion.

ALLAN H. MELTZER

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Planning for an Expanding Economy: Accumulation, Employment and Technical Progress in Underdeveloped Countries. By C. N. VAKIL and P. R. BRAHMANAND. (Bombay: Vora & Co. New York: Institute of Pacific Relations. 1956. Pp. xxx, 404. 20 *s;* $4.50.)

Inadequacy of Western aggregative models as a basis for policy prescription in underdeveloped areas is the theme of this stimulating work by two prominent Indian economists. The authors have taken the second Indian five-year plan as the starting point for their attempted reorientation of analytical perspective.

The plan is doomed at its very outset, they claim, because it is derived from a theoretical apparatus which has very little relevance to the "reality of Indian economic conditions." Underdevelopment, according to traditional western diagnosis, is due to deficiency in supply of fixed capital relative to potentially available labor. The obvious remedy, and the formula followed by the Indian planners, is to accelerate the rate of investment through austerity measures and to utilize surplus labor through labor-intensive production methods.

This approach, the authors feel, is inherently contradictory. Income targets will not be reached in the context of the plan because the heavy emphasis on investment will only succeed in raising the value of the capital coefficient. The employment situation will worsen, rather than improve, because the planners have failed to provide for the necessary balance between demand and supply of wage-goods. The proposal to make up shortages in wage-goods through cottage industry development in the rural sector is self-defeating in that it retards rather than utilizes technical progress. Basically, the plan is deficient because it fails to come to grips with the pervasive problem of disguised unemployment. This is due to the planners' preoccupation with analytical models oriented to the Western aggregate demand problem.

Disguised unemployment persists in underdeveloped areas, the authors contend, primarily because of an aggregate deficiency of the supply of wage-goods. The crucial short-run determinant of economic growth therefore is the rate of expansion of the marketable surplus. Since this has been completely overlooked by the planners, their measures will serve to frustrate, rather than realize economic development.

The alternative proposed by the authors is to expand employment and investment coordinately. This is to be achieved by utilizing technical and organizational changes to effect a rapid expansion of wage-goods production, which in the process transforms surplus labor into "employable" units for use in capital construction activities. The strategy here is to increase the availability of marketable surplus through noninflationary measures of forced savings. The resources thus released become the basis for a multiple expansion

of employment in investment, as determined by the "consumption multiplier." This approach emphasizes formation of liquid rather than fixed capital, so that investment and employment may expand together. The plan's approach, on the other hand, represses the marketable surplus and increases investment at the expense of employment.

Solutions to long-run developmental problems are achieved, the authors claim, if the new investments are devoted to wage-goods production. Through appropriate technical innovations, it is possible to increase the rate of expansion of wage-goods output substantially above that of population, as well as the net profitability of new investment. Thus, the potential for cumulative expansion of investment is created, the rate being determined by the "accumulation coefficient" (given by net profitability of new investment and the consumption multiplier). At the same time, a cumulative reduction of population pressure on land occurs, so that disguised unemployment is eliminated in "about ten years."

Yet, while the authors have assailed the plan for failing to solve the problem of disguised unemployment, this reviewer feels their alternative also does not yield a solution within the given period (even the ten-year estimate appears overly optimistic). The ultimate basis for appraisal would seem to be whether capital formation contemplated by the plan will enhance technical progress so that wage-goods output may be expanded to a greater or lesser extent than envisaged in the alternative. However, the comparison should appropriately be made for 15 or 20 years hence. It seems the authors have also relied on technical progress to achieve rapid output expansion without being clear as to the basis of such progress. Technical or organizational changes cumulate gradually over time and also depend on a given status of capital accumulation. It is difficult to visualize how they may be rushed into action, particularly in view of the institutional environment of underdeveloped areas. The reviewer would also question the extent of forced savings, necessary to initiate the expansion process, which might be extracted from a rural sector, already hovering around subsistence levels.

Nevertheless, the entire argument has been cogently and lucidly presented and deserves serious consideration from Western economists. The volume is a distinctly superior analytical effort and gives promise that when a theory of development and underdevelopment is formulated, it might well come from the Eastern academic world.

SHELLEY M. MARK

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Capital Requirements for the Development of South and South-East Asia. By S. A. ABBAS. (Groningen: J. B. Wolters. 1956. Pp. 151. $4.00.)

While explicitly recognizing that there are more dimensions to the problem of economic development among the underdeveloped nations of the world than capital formation, S. A. Abbas of The Netherlands is concerned with methods of estimating the magnitude of capital required if south and southeast Asia are to be lifted out of their awful poverty. He observes that the United Nations experts who authored *Measures for the Economic Develop-*

ment of Underdeveloped Countries come up to this problem only to back away from it:

> We have debated at some length whether it would serve any useful purpose to suggest any figures in this sphere and whether we should not merely leave the matter by saying that these countries will progress faster if they get more capital and more slowly if they get less. We have, however, come to the conclusion that there is so little understanding of the magnitude of what is involved that we would be failing in our duty if we did not indicate that, in our opinion, the transfer of capital that is required to raise rapidly the living standards of underdeveloped countries is far beyond what is currently envisaged.[1]

Dr. Abbas finds in the device of capital coefficients a tool for attacking this problem. He notes that while capital coefficients differ strikingly between industries, there is remarkably narrow range in over-all coefficients country to country. Defining South and Southeast Asia for the purposes of his study to include India, Pakistan, Ceylon, Burma, Thailand, Indonesia and the Philippines, Abbas believes from fragmentary information that one may take 4 as the capital coefficient of the area.

To estimate capital requirements it is necessary to make assumptions on population growth as well as the numerical value of the capital coefficient. Notwithstanding the inadequacy of the data, Abbas believes we may assume the population is growing at a rate of 1.33 per cent per annum in the area. He accordingly concludes that capital formation must be at the rate of 5.32 per cent of the national income if per capita income is to hold its own. Inasmuch as he sees savings to be merely 4 per cent, he concludes that the area in its own endeavors is not even holding its own much less raising itself out of its all pervading poverty.

On the basis of the very limited estimates of income data, Abbas quantifies initial, annual capital requirements for the area (1951) under three sets of assumption (figures are in millons of US dollars):

Case I	Maintaining per capital income in the face of population growth:	$ 1,493
Case II	Increasing per capita income by $1 per annum:	6,341
Case III	Employing the annual increment of population in the nonagricultural sector and transferring to this sector, at the rate of 2 million persons a year, surplus workers in agriculture:	12,998

Since he estimates domestic capital formation at $1,132 million with net outflow of $14.3 million, the disparity between present rates of domestic capital formation and capital required to raise the area out of its present condition is at once apparent. In 1951 he believes that the inflow of foreign capital from all sources amounted to $604 million.

Abbas builds his analysis on the most recent advances in theoretical work in the U.S. and Europe. His basic problem is the disparity between his tools and his material. His tools are designed for dealing with integrated economies.

[1] United Nations, *Measures for the Economic Development of Under-developed Countries* (New York, 1951). Cited by Abbas, pp. 4-5.

They are meaningful in the context of such economies but have only limited applicability to economies such as those found in South and Southeast Asia which are not truly integrated. There is a further problem: that of the disparity between the refinement of the tools and the crudity of the data with which one has to work in these areas. Abbas believes he minimizes this latter difficulty by taking a group of countries. Whether this increases or diminishes the problem, however, it in no sense obviates it.

With these reservations in mind, Abbas has provided us with estimates of capital requirements. But, as he would readily admit, for such requirements actually to be requirements, structural changes in the very fabric of these societies will have to occur. Groups presently politically dominant will have to be displaced. One has only to view the problems attaching to school integration in our South to have a sobering realization of what difficulties such political and social realignments involve.

Probably because the book is in English, a foreign language to its author and to its publisher, there are numerous typographical slips, which, when numbers are involved, are particularly disconcerting. Although the style of expression is at time awkward, it would perhaps more become us to applaud the author's linguistic ability than to lament an occasional unidiomatic expression.

ELEANOR M. HADLEY

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Istoriya narodnogo khozyaystva SSSR. Vol. III, *Sotsialism.* By P. I. LYASHCHENKO. (Moscow: Gosudarstvennoye Izdatel'stvo Politicheskoy Literatury. 1956. Pp. 643. 13 r. 50 k.)

The first two volumes of P. I. Lyashchenko's economic history of the peoples of the Soviet Union, covering the precapitalist and capitalist periods, are available in English translation under the title *History of the National Economy of Russia to the 1917 Revolution* (New York: Macmillan, 1949). The book under review is the first Russian edition of the third and last volume of the history, covering the period of "socialism" from 1917 to 1950.

The book comprises three long chapters and nine subchapters arranged chronologically according to the usual periodization of Soviet history: the revolution of 1917, the period of war communism (1918-1920), the new economic policy (1921-1929), the collectivization of agriculture and the first five-year plans (1929-1940), the second world war (1941-1945), and the period of postwar reconstruction (1946-1950).

About the material of the book Lyashchenko says frankly in his foreword: "Not all chapters have been elaborated to a sufficient extent. This is explainable by the fact that in the case of some chapters the author was not able to use the necessary materials and that not all the problems of the history of the national economy have been elaborated to the necessary extent in our historical and historico-economic literature." This may mean that the author was not allowed to use all the necessary materials and that he did not venture to discuss problems on which the party line has not yet been established.

It is also noticeable that whereas in the rest of the world in the course of

time, as the result of the growth and accumulation of knowledge, the quantity and quality of statistical data and facts available to the economist constantly and cumulatively increase, in the Soviet Union as Lyashchenko's book bears witness a reverse process is in evidence: there the quantity and quality of data available to the scientist can be figuratively described by an ogive cumulated downward. Altogether there are over 100 tables and some 200 footnotes on the original primary sources in Lyashchenko's book, but whereas for the period 1917-1929 he was able to produce 56 tables and about 150 primary-source quotations, for the period 1940-1950 he produced only 5 tables and 7 primary-source quotations for almost an equal number of pages.

Lyashchenko's statistical analysis of economic growth is conducted almost exclusively in terms of physical units, with the production aspect of the problem completely predominant and the distribution and consumption aspects noticeably neglected. Such an emphasis leaves the cost aspects of economic progress almost completely absent from the book. This approach is not entirely Marxian for though Marx did advocate "the management of things" rather than market values under socialism and put stronger emphasis upon production than on anything else, nevertheless he always at least called attention to the need for economizing on such cost aspects as labor input and the labor-time component of the value produced.

Again this seems to be not entirely the fault of the author. Where he has aggregate data available he uses them skillfully. But too often they are not available to him. Thus, for example, he very seldom uses national income data; he devotes a score of pages to a penetrating verbal analysis of the problems of the accumulation and allocation of capital (pp. 196-216), but his data are sufficient to analyze these problems statistically only for the period 1917-1929. Similarly, he is aware of the meaning and importance of prices under the Soviet state monopoly system; he says, *e.g.:* "Price policy was one of the main points of all the economic policies of the Soviet state. In the final analysis it determined the prospects of the development of industry and agriculture, the rates of capital accumulation, the real wages of the workers, the stability of the financial system, etc. Hence, in the problem of prices there met all the basic economic and political problems" (p. 232). But he is able to analyze the prices and price policies for the preindustrialization period only; he has no data or is not allowed to speak about the prices after 1929. On the other hand, the lack of data does not explain Lyashchenko's failure to consider the foreign trade of the USSR at least for the periods before the second five-year plan when it was quite important for the industrialization of the country.

Unfortunately, some politically influenced biases in the appraisal of historical facts and periods are also present in the book. Thus, for example, the old dogma that the party never errs forced Lyashchenko to keep silent on the error of the Russian Communist Party in hastily trying to construct a marketless and moneyless communistic economy in industrially backward Russia immediately after the revolution, in the period of so-called war communism, an effort which failed. Lyashchenko quotes Stalin's *post factum*

remarks of 1928 to the effect that war communism was only "a set of measures necessitated by the war" and not a consistent party policy aimed at the establishment of a new economic system (pp. 68-69). But that they were not only "war measures" but were also a consciously applied economic doctrine is shown by paragraphs 13, 14, and 16 of the economic part of the Program of the Russian Communist Party adopted by its 8th Congress in 1919, by the famous book of N. Bukharin, *The ABC of Communism,* and by numerous other publications, documents and ideological pronouncements of the Soviet leaders of the period.

With all these limitations and shortcomings Lyashchenko's book nevertheless is in certain aspects a valuable contribution to the history of the Soviet Union's economy. It provides in organized form some important facts and data on the preindustrialization period. The period of the new economic policy is especially well elaborated. It is quite frank and factual about the process of the collectivization of agriculture. For the periods of the first and second five-year plans it provides a detailed coverage and extensive statistics (but mostly in physical terms) on the growth and development of individual industries and branches of economy. For the first time in the scientific literature on Soviet economics Lyashchenko attempts to give a comprehensive picture of the Soviet economic policy towards the constituent republics of the USSR. The book has also a highly useful chronological table of main economic events in the USSR for the period 1917-1950.

In 1956 P. I. Lyashchenko died. This book is in fact a posthumous publication. The author was one of the leading contemporary Ukrainian economists, with a long list of contributions to Soviet economics. He was a full member of the Ukrainian Academy of Sciences and a corresponding member of the Academy of Sciences of the USSR. He held a Stalin prize for the first two volumes of his history.

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The Resurgent Years 1911-1927: A History of the Standard Oil Company (New Jersey). By GEORGE S. GIBB and EVELYN H. KNOWLTON. (New York: Harper & Brothers. 1956. Pp. xxix, 754. $7.50.)

This is the second of three volumes prepared under the auspices of the Business History Foundation, Inc., on the history of Standard Oil Company (New Jersey), and deals with its rebuilding and expansion, horizontally and vertically, from the dissolution decree in 1911 until 1927. The first volume was published in November 1955 as *Pioneering in Big Business* by R. W. and M. E. Hidy for the period from 1882 to 1911. For each volume, the old records and files of Standard Oil Company (New Jersey) provided the principal source materials.

The economic problems created by the 1911 decree are described in the early part of the book. As the authors point out, Jersey Standard itself had never been a producing company before 1911, but was principally a refining and marketing organization. Among the companies disaffiliated were those

which transported crude oil from the fields to its refineries in New Jersey and those engaged in crude oil producing and purchasing. Former affiliates were willing to sell their crude oil and continue shipments to Jersey Standard as in the past, but increasing dissatisfaction with their unwillingness to increase production (p. 56) was a reason for Jersey Standard's expansion after 1918. The authors demonstrate that integration is the keynote of this period and conclude that the eventual effect of the decree was to foster competition, not only between former members of the Standard Oil trust, but also independent organizations, such as Gulf, Pure and Texaco. However, they claim the economic position of the small independent remained as precarious as ever and sometimes he could not afford to be efficient or farsighted (p. 624).

Detailed treatment is given to important developments and policies in Jersey Standard's reintegration. This includes its crude oil expansion in the mid-continent area through Carter and Louisiana Standard, acquisition of Humble in 1919, construction and use of pipelines to serve its refineries, use of its large tanker fleet, research programs, processes, patent litigation and refinery output. The expansion into Arkansas was the first venture into territory not served at the time of the decree. With reference to unbalanced conditions of refining and marketing the authors state at page 187: "The Jersey Company, so heavily endowed with refining capacity that it lacked sufficient trade outlets within its own marketing territory, was able and only too willing to continue to remedy the deficiencies of companies such as Standard of New York, which possessed highly developed marketing facilities and inadequate refining capacity to serve them."

Roughly one-third of the volume is on its business and competition in foreign countries. The methods employed by Jersey Standard in its producing ventures in the Middle East, Mexico, Venezuela, Bolivia, Colombia, Peru, Dutch East Indies, and other areas are reviewed, as well as those activities concerned primarily with marketing agreements and outlets in foreign countries. One reason for expansion in foreign crude oil is suggested on page 108 as follows: "In protecting our foreign investment, we protect ourselves and our friends by controlling a greater percentage of the foreign business which comes directly into competition with American products. By owning it, we can influence its activity at times when production is too great or too small in America and maintain more regular conditions."

Basic operating and financial statistics for Standard Oil Company (New Jersey) and affiliates by years are included. For example, Table VII (Appendix 2, p. 676) gives the net crude oil production for Standard Oil Company (New Jersey) and affiliates by years, 1912 to 1927, separately, for each domestic and foreign affiliate; and Table 21 (p. 598) shows the net earnings and percentages for producing, transporting, refining and manufacturing, marketing, natural gas, and miscellaneous, separately, with a further breakdown by domestic and foreign earnings by years.

The authors appear to place too much emphasis on the political climate under which Jersey Standard operated. For example, on page 624 they state: "The effect of unremitting public attacks, many of which had been launched for eminently selfish purposes, was to make Jersey Standard watchful, sensi-

tive, cautious—and strong. The La Follette Committee report of 1923 was a reverberating salvo fired by the retreating but not defeated enemies of the large corporation."

The role that various officers and others played in developing its policies and programs during this period is clearly indicated. In measuring Jersey Standard's growth, convincing facts are presented on the efficiency of its operations and administrative decisions. During the period from January 1, 1913 to December 31, 1926, with reference to sources of funds, Jersey Standard's own earnings and dividends paid to it were 61 per cent of the total (p. 605) and for the entire 1912-1927 period earnings averaged 12.4 per cent.

The organization of the volume is excellent and it is carefully documented. The authors deserve much credit for a valuable contribution to business history in tracing the growth of Standard Oil Company (New Jersey) after the dissolution decree.

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Statistical Methods; Econometrics; Social Accounting

Studies in Inter-Sectoral Relations. By P. Nørregaard Rasmussen. (Amsterdam: North-Holland Publishing Co. 1956. Pp. 217. $6.00.)

This book is the work of a young Danish economist, now professor at the University of Copenhagen, whose earlier publications were largely articles on econometrics in Danish journals. The volume is not a translation in the sense of deriving from a parallel Danish publication, but it is evident that English was employed only in order to reach a wider market, and that its use must have presented many trials to the author, a number of which remain for the reader.

The volume is devoted to the development of certain techniques for the application of input-output analysis to selected problems. The presentation is largely formal and more or less rigorous, and a good many equations appear which contain summation and matrix algebra symbols. Within this mathematical area the operations are quite elementary—as is most of input-output mathematics—but for the reader not at all familiar with matrix algebra, the explanations in the text would be insufficient. The reader who does wish to follow the mathematics could do so adequately by referring to some good introductory work, such as the appendix of Gerhard Tintner's *Econometrics* (New York, 1952).

Although the author describes his book as a "methodological" contribution to problems of intersectoral and international trade, its main body consists of a series of theorems and formulae of measurement deduced from the Leontief static open input-output model, applied to three important areas of economic analysis: (1) the system-wide effects of specified changes in the prices of resources on the prices of individual goods; (2) the changes in the distribution of net income (value-added and its components) among individual industries as the results of changes in prices—Rasmussen calls such shifts

changes in the "terms of trade" among industries; and (3) measures of structure and structural change of an economy as a whole. These theories and measures are illustrated with relevant data and coefficient matrices for the economy of Denmark in 1947 and 1949. (The author disclaims consideration of the empirical applications as tests, on the ground of the preliminary character of the coefficient values, but the final matrix estimates have since been published by the Danish government, and the reviewer finds little change.) In addition, three early chapters deal with the theory and some of the implications and limitations of input-output analysis, while discussions of methodological issues are scattered through the volume. There is an appendix on the conceptual problems involved in measuring gains and losses from changes in terms of trade, and on the assumptions underlying alternative solutions. A second appendix contains the Danish input-output flow and coefficient tables, and a brief discussion of the methods used in deflating and deriving the inverses. A bibliography lists some 120 books and articles; although this list is fairly broad, the reader will find it superseded by the comprehensive *Interindustry Economic Studies* of Riley and Allen.

The advertising notices announcing Rasmussen's book may give the impression that it includes an adequate general account of input-output analysis. This is not the case. The sketch of the model presented in the first three chapters would not add to the understanding of input-output specialists. Yet it is not so well organized or so clear as to serve the purpose of an introduction or review. This inadequacy results partly from an apparent uncertainty of purpose of the book as a whole, partly from lapses of style. (As an example of the latter, the important concept of the coefficient of the inverse matrix is introduced for the first time in an equation on page 35, but is not defined until a page later, and then only through another equation.)

The major effort of the volume is devoted to the derivation and use of formulae for tracing the total price effects of specified price changes. The methods are fundamentally those presented by Leontief in 1946.[1] Rasmussen introduces some variations on the Leontief solutions, mainly in setting up formulae for linking directly an exogenous change in one variable (such as an import price) to the resulting change in some other variable (such as some domestic sector's wage or profit rate), and in expressing such changes as indexes relative to base-year prices. There are, in addition, formulae for measuring relative gains or losses among the factor incomes in different industries, in real and money terms, when relative prices change. A simple dynamic model is suggested for tracing an inflationary spiral, on the assumption that a known percentage increase in all wage rates follows each increase in the cost of consumer goods which the model has derived from the prior wage rise.

No work prior to Rasmussen's has applied input-output theory to the interdependence of prices in the real world in such an elaborate and formal manner—and not without reason. Since this specific application was introduced

[1] Wassily Leontief, "Wages, Profits and Prices," *Quart. Jour. Econ.*, May 1946. The same article comprises Part IV, Section C, of Leontief's *The Structure of American Economy, 1919-1939* (New York, 1951).

by Leontief some ten years ago, references to the use of input-output analysis for tracing the transmission of price changes have been confined almost entirely to warnings as to its weakness for this purpose. The weakness lies not only in the familiar problems of the measurement and stability of the technical relationships expressed in the coefficients, but also in the necessity of making the most hazardous assumption as to the degree of absorption or transmission by each industry of changes in the prices of its inputs. Real progress in this field would seem to require empirical research into the possibility of estimating the specific degree of price-change transmission. Rasmussen proceeds on the basis of very simple assumptions of uniform price effects, and does not address himself to the problem of how to select among alternative assumptions. Even so, his illustrations with Danish statistics seem to indicate that useful predictive results are possible; it should be recognized, however, that the amount of information specified in formulating his particular problems was so great that the solutions were almost truistic.

The most interesting subject taken up by the author is the application of the input-output method to the definition and measurement of economic structure and structural change. Since the rationale of the input-output approach is rooted in its explicit use of the quantitative configuration of an economy's sectoral interrelationships, it should be a pre-eminent tool for handling problems of structural and developmental measure. That research has not turned seriously to such applications is probably due only to the concentration on other problems by available specialists. Leontief gave some attention to the matter in *The Structure of American Economy* (both editions) and subsequently in *Studies in the Structure of the American Economy* (New York, 1953), though he limited himself to comparison of the magnitudes of corresponding input coefficients in identical industries in various periods within the United States. Rasmussen has attempted to go further, by presenting what he calls "summary measures for the inverse matrix." The two chief indexes he proposes are designed to measure the degree of importance of an individual industry within an economy, as indicated by the breadth of its contribution to and dependence upon all other sectors. This is at least a beginning in a direction that seems very promising.

On the whole this book is not a major contribution to input-output literature. Its review of the basic theory is not very clear and is far from complete. Its empirical illustrations are incidental. The author's theorizing is so rigidly formal, and remains so completely within the confines of the already developed static open model, that to some degree the approach is a retrogression from the more recent tendency to relax the earlier assumptions and even in many cases to abandon the inflexible inverse matrix in order to deal with constraints and alternative possibilities.

Yet many readers may find a study of the book worth while. With the present lack of any satisfactory single presentation, the nonspecialist is likely to gain from a new work some additional insight into the meaning, potentialities, and unresolved problems of the input-output approach. Even the specialist may find it stimulating to be confronted afresh with controversial issues, and

to consider suggested applications, irrespective of his judgment of the author's specific proposals.

AMOR GOSFIELD

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Economic Systems; Planning and Reform; Cooperation

The Labour Government and British Industry, 1945-1951. By A. A. ROGOW. (Ithaca: Cornell University Press. 1956. Pp. viii, 196. $3.00.)

The chief value of this book lies in the originality of its approach, which is well defined. Rogow, one of that group of younger scholars attracted to postwar Britain by socialism in action, decided to test how successfully labor had transferred power to itself by examining the Labour Government's relations with British industry. The book is thus much more limited in scope than either Ben W. Lewis' *British Planning and Nationalization* (1952) or Robert A. Brady's *Crisis in Britain* (1950). Rogow's method was to study a number of specific problems in which power contests developed between government and industry—notably the attempts to set up Development Councils, to limit dividends, and to nationalize steel.

A chapter on planning makes clear how cautious was labor's experimentation in this field: nearly every device used grew directly out of the wartime control machinery. To make business do what labor wanted it to do, the government did not set up a system of direct controls devised and administered by independent government officials but relied heavily on consultation with industry for both policy and administration. This meant that the trade associations, a dominant influence in British industry, were not only left almost undisturbed but came to exercise a powerful role in framing and administering such control policies as raw material rationing and price-fixing. Perhaps the most important reason the government had to rely so heavily on personnel recruited from industry (sometimes taken on by government as pound-a-year men) was the lack of any others who could have done the job. Democratizing the civil service would have required years to carry through. The same reason —the strength of the private trade associations and the lack of any alternative regulatory machinery—explains the ineffectiveness of the Labour Government's attempt to break up monopoly. Rogow notes that labor lacked any positive program for regulating private industry, but he holds back from saying what he thinks such a program might consist of.

A chapter on labor relations is the book's weakest. It exaggerates the role of profit-sharing and neglects attention to the informal personal relationships between union leaders and government leaders, the political difficulties that gathered momentum after Cripps' "Wage freeze" of 1948, and the significance of the Industrial Injuries Act in reforming the administration of workmen's compensation. A chapter on taxation contains useful summary information but illustrates how much difficulty an honest author has in trying to make up his mind about the effect of high taxes on business incentives. The inevitable chapter on nationalization is saved from being just another review of familiar

material by focusing on the one attempt at nationalization where the power struggle was strongest, the steel industry. The private Iron and Steel Federation consistently thwarted the government's attempt to set up an effective public corporation, and the government proved powerless to do much about it. When British industry "took its stand," it won. It won again in the battle for public opinion, when the government threatened certain minor nationalizations, such as sugar refining.

A concluding chapter on "The Politics of Stalemate?" explores some of the large and elusive questions of social and political change. Does the labor experiment suggest that private business power will or will not "cooperate" with a government bent on reducing its power? (Rogow leaves vague the meaning of "cooperation.") When private industry begins to pay more attention to industrial democracy on the job, does this reduce the appeal of political solutions to social questions? Are property relationships in modern society relatively unimportant and power interests the only ones that really count? Are the limits of British socialism set not by political power but by its bondage to middle-class values that prevent it from making full use of that power to reshape society according to a new ethic? In answering these questions, Rogow says nothing new; at times he does not probe as deeply as he might. But Rogow writes well and he merits praise for having assimilated a large mass of facts which he has skillfully distilled into a short, sensible, and very readable book.

GEORGE B. BALDWIN

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Money, Credit and Banking; Monetary Policy; Consumer Finance; Mortgage Credit

Una Economía Libre sin Crisis y sin Paro. (A Free Economy Without Depression and Unemployment.) By GERMÁN BERNÁCER. (Madrid: Aguilar, S. A. de Ediciones. 1955. Pp. 316. Ptas. 95.)

The Spanish economist, German Bernácer, who first became known to his Anglo-Saxon colleagues in 1940 through an article by Sir Dennis Robertson,[1] has published a new work dealing with the financial aspects of macroeconomic equilibrium. The new book, like Bernácer's earlier works,[2] constitutes an uncompromisingly liberal effort to develop an institutional framework for a free economy. In Bernácer's system, unemployment, depression, and inflation find their cure with a minimum of direct government action. By the same token, the system restores and protects economic liberty, which the author sees threatened by growing interventionism.

Bernácer's policy conclusions derive from his analysis of macroinstability. His thinking in this field, original when first formulated, points to conclusions not basically different from current formulations of the income-expenditure approach. Nevertheless, Bernácer's analysis employs certain concepts that do

[1] "A Spanish Contribution to the Theory of Fluctuations," *Economica*, Feb. 1940.

[2] An earlier statement of Bernácer's ideas may be found in *La Doctrina Funcional del Dinero* (Instituto de Economía Sancho de Moncada, Madrid, 1945).

not fit very well into the customary national accounts framework, though they have a certain common-sense appeal. Bernácer sees the income stream divided into three parts: (1) consumption; (2) invested savings; and (3) savings that go into the financial market, a kind of suspense account, pending their ultimate disposal. The output stream is divided into three parallel categories: (1) output sold for consumption; (2) output sold for investment; and (3) output not yet sold to a final buyer that is held in inventory pending a final disposal. In equilibrium there is no change in the suspense accounts for savings and output, and all current output goes into consumption or investment. Saving and investment then are equal.

In a disequilibrium situation, however, saving and investment, as defined by Bernácer, are not necessarily equal. A flow of savings into the financial market may force part of output into unwanted inventories, or into liquidation at cut prices, either of which would bring on a contraction. The reverse process, a seepage of funds out of the financial market into active circulation, brings on an expansion. Changes in the supply of money, through credit creation or balance-of-payments movements, have the same disequilibrating effect, unless by some accident their impact should remain confined to the financial market.

Thus, the core of the causes of instability is found to lie in the institution of the financial market. Bernácer does not believe that interest-rate movements can halt inflationary or deflationary tendencies. But since in other respects he has faith in the price mechanism, he believes that the problem can be solved by dealing drastically with the root of the evil—by eliminating the free financial market. His positive proposals are geared to this end. The financing of fixed investment would be achieved by the allocation of equities and bonds to income-receivers and, if necessary, to banks. Increases in working capital would be supplied by the banking system whenever necessary. Such creation of new money would not be in conflict with Bernácer's equilibrium analysis, if the liquidity needs resulting from growth are taken into account. The banking system would thus become the main locus of flexibility and would play a key role as a policy instrument.

This schematic presentation of Bernácer's main ideas falls short of giving an impression of the detailed structure of the author's thought and policy suggestions. The book is brilliantly written, with the technical aspects relegated to appendices. In his leanings toward an automatic system working within a carefully constructed framework, Bernácer's views resemble those of many neoliberals today. He differs substantially, however, in his pessimism regarding the effectiveness of the interest rate as a device for achieving equilibrium, and in the greater radicalism of his reform proposals. Fundamentally, Bernácer seems to take a Rousseauesque approach to economics: the market system is good, but some of the institutions which man has created are bad. By eliminating them, we shall move closer to the "natural state" of an economy and we shall be rewarded by its better functioning.

Just what sort of an economy this would be without a capital market, without the right to dispose of property, it is not easy to see. It would be free in the sense of freedom from state action. But it would be bound by rigid rules

of its own making. It would not be socialistic, but it would be a far cry from capitalism as we know it.

Bernácer is aware that his reform proposals are at odds not only with vested interests, but also with the thinking of a great part of professional opinion. In the preface to the book he comments resignedly on the difficulty of finding acceptance for his views. To his readers, it is gratifying nevertheless to hear the voice of an independent economic thinker reaching them from Spain.

JORGE F. FREYRE

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Monetary Policy in Continental Western Europe 1944-1952. By STEPHEN F. SHERWIN. Wisconsin Commerce Studies Vol. II (2). (Madison: Bureau of Business Research, University of Wisconsin. 1956. Pp. iv, 311. $1.15.)

Few phases of recent financial history afford the student of monetary theory and practice as much illustrative material and as many significant test cases as the monetary experience of Western Europe following the second world war. The drastic monetary purges adopted in Belgium following her liberation, in the Netherlands and several other countries immediately after the war, and in Western Germany in 1948 are of interest primarily as an object lesson of what the shock treatment in the field of monetary policy can accomplish when the body economic is afflicted by a severe monetary malady. The more subtle policy responses to the aftereffects of these drastic cures as well as the various types of therapy applied whenever new outbreaks of monetary disorder became evident during the reconstruction period also make an interesting story. The political and economic pressures that prevented the adoption of comprehensive monetary reform programs in France and Italy testify to the fact that monetary policies, particularly in periods of economic and financial turmoil, have an important influence on the distribution of income and wealth and thus touch upon very basic interests of powerful social groups.

In his study of monetary policy in Continental Western Europe during the seven postwar years, Mr. Sherwin has done a creditable job in many respects. He shows himself fully alive to the dramatic aspects of postwar monetary policy and the manifold economic and social implications of the major monetary policy decisions in the period under review. His summaries comparing the widely varying policy measures taken during each major phase of the postwar monetary history in France, Italy, Germany, Holland, Belgium and Denmark are particularly useful to readers who are reluctant to delve into the author's blow-by-blow account of what was done in this field throughout the period. That the book nevertheless does not fulfill all that one could have hoped for may be attributed to Sherwin's tendency to issue categorical opinions all too frequently on the merits and shortcomings of specific policy measures. His value judgments, he warns, "are based on European rather than United States standards and are always relative to a country's historical experience." Yet this caveat, whatever its precise meaning, does not appear to justify many of the author's outspoken views as to what particular measures Europe's central bankers should have adopted in particular situations. A case

in point is the following suggestion: "In Germany, the monetary authorities should have remedied the frictional unemployment by providing credits to transport the workers to places where there was idle capacity" (p. 208). Several other instances could also be cited of the author's tendency to show a lack of restraint in commenting on controversial policy measures taken in extraordinarily complex situations.

Fortunately, much the larger part of the book is descriptive. Part I entitled "The Legacy of the War: Excess Liquidity" reviews the execution of the currency reforms in Belgium, Germany and the Netherlands and describes the policies pursued by Denmark, France and Italy in lieu of monetary reforms. The inflationary pressures that were a natural concomitant of the early reconstruction period when consumers were reluctant to produce the requisite savings are reviewed in Part II. Under the somewhat misleading title "The Recession" the author surveys in Part III the brief period of relative stability that, beginning in 1948 or 1949, prevailed in several countries where counterinflationary measures achieved a considerable degree of success. Part IV contains a rather elaborate description of the monetary policy measures adopted when inflationary pressures again gained strength, in some countries following the September 1949 devaluations and in others subsequent to the outbreak of the Korean war in the summer of 1950. A useful "General Summary" concludes the book, the binding, editing and printing of which leave much to be desired—faults that may perhaps be excused by the very moderate price at which the Bureau of Business Research and Service of the University of Wisconsin offers it to the public.

In the late 'forties and early 'fifties, several monographs and articles in academic journals have covered specific phases of the postwar monetary experience of major European countries. A few papers, such as the excellent article "Excess Liquidity and Monetary Reforms" by J. G. Gurley in the March 1953 issue of this *Review,* contain detailed surveys of several monetary reform programs. Of course, numerous official publications and annual reports such as those of the Bank for International Settlements and United Nations agencies give a running account of monetary developments in the major European countries. But there exist very few broad and comparative studies of postwar monetary policies. While some of Sherwin's value judgments carry little conviction, he has filled an important gap and performed a useful service by bringing together a great deal of material that is not easily accessible elsewhere.

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The Federal Credit Union: Policy and Practice. By JOHN T. CROTEAU. (New York: Harper & Bros. 1956. Pp. viii, 201. $4.00.)

The credit-union movement is growing rapidly. In such a movement new elements appear. This book is a survey of federal credit unions. Each of its eleven chapters brings out new facts, many of which are sufficiently significant to render existing literature substantially obsolete. Only a few examples may be given here.

During the twenty years 1935-1954 promotional efforts by the Farm Credit Administration resulted in chartering 9096 unions, of which 6856 were in existence at the end of 1954. The 2240 liquidations possess especial interest because the total losses caused by them in twenty years have amounted to only fifteen one-thousandths of one per cent of the balances standing to the credit of members at the end of the period.

In 1180 liquidations, 57 per cent of the total number, the members received more—in some instances substantially more—than 100 per cent of their share balances. Why then did these successful credit unions liquidate? Three reasons seem to have been especially common: employer opposition, a change of plant location or the closing of an employer's business. It is not surprising therefore to find that the occupational groups with the lowest percentages of charter cancellations are found in local government and the public utilities.

In 460 liquidations, 22 per cent of the total number, members received precisely 100 per cent of their share balances. This precise equivalence in so many instances seems to be due chiefly to the methods employed in liquidation: an employer may buy the union's assets for an amount sufficient to pay members 100 per cent of their balances, or the union's assets may be sold to a liquidating agent for less than the face value, but for an amount sufficient to reimburse members. The liquidating agent thus secures a profit for his work.

In 414 liquidations, or 20 per cent of the unions liquidated, members suffered some loss. Total losses were $129,048. (Present assets of federal unions are $1,033,179,042.) One union suffered a heavy loss, $33,778; but, even with this included, the average loss was only $3.44 per member for the unions that suffered loss. Typically the union that liquidated at a loss was small: 245 of these 414 are listed as having assets less than $501. Federal examiners in reporting on the causes of liquidation assign first place to "indifference of potential leaders and members."

Other chapters also contain material that is novel. For example, credit unions started among urban workers; but since 1947 the assets of unions serving rural residents have grown by 815 per cent.

A new union reaches maturity in about twelve years. Members save chiefly for consumption expenditure. Their savings will for some years enlarge the union's assets; but after some interval the withdrawals for such expenditure will be almost as large as the fresh savings. Maturity shows itself also in the composition of assets. A young credit union will hold chiefly cash and loans to members. After about four years the members' need for loans is satisfied and other assets begin to appear; but not until after its fourteenth year will a typical federal union have more than a quarter of its assets invested in government bonds and the shares of savings and loan associations.

The organization of this book is good. Its conclusions are supported by statistical evidence, and its numerous statistical tables are well arranged. Its bibliography is especially complete and helpful. Professor Croteau is obviously an advocate of credit unions; but even those who do not share his enthusiasm, will agree that his volume is now clearly the best description available in this somewhat limited field.

DONALD S. TUCKER

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Structure économique et théorie monétaire. By ALEXANDRE CHABERT. (Paris: Armand Colin. 1956. Pp. viii, 270. 1000 fr.)

This monograph is devoted primarily to the statement and the statistical verification of a single thesis, stated in italics at page 225: "The more underdeveloped a country, *i.e.*, the closer it approaches an undifferentiated economy (monoculture or some similar state) the better does the quantity theory seem to fit." The inspiration for the study developed out of Alvin Hansen's seminar at Harvard and Hansen himself supplies a laudatory preface, making the volume in more senses than one a study in international economics and economic thought.

The common sense of Chabert's thesis can be developed in either Fisherian or Keynesian terms. Given a Fisherian equation of exchange, $MV = PT$, the fact of underdevelopment may be taken to imply that V and T remain relatively constant, so that the simple correlation between M and P is high. In developed countries V and T are subject to greater variation, so that the simple correlation between M and P is generally low and occasionally inverse. A Keynesian explanation of the same phenomena (found by Chabert in Hansen's *Guide to Keynes* rather than in Keynes himself) runs in terms of the propensity to consume. In underdeveloped countries, the argument proceeds, marginal and average propensities to consume are approximately equal, while in developed countries the allegedly greater divergence between the two interferes with the theory.

Chabert's main effort (Part II of the volume under review) is devoted to the statistical support of his thesis rather than further demonstration of its theoretical plausibility. The nub of his voluminous tables and charts, mainly drawn from League of Nations and United Nations sources, is the statistical correlation between M and P over the period 1929-52 and four sub-periods thereof (1929-37, 1937-40, 1941-45, 1946-52) for some 19 underdeveloped countries, the United States, and the United Kingdom. The 19 underdeveloped countries chosen are Latin American with four exceptions from the Middle East; they are further classified by degrees of underdevelopment (per capita consumption of energy, etc.). The statistics are presented largely in the raw, *i.e.*, with a minimum of historical accompaniment, recalling the definition of the statistician as "a man who separates the facts from the figures and uses the figures." The conclusions are favorable to the thesis, as cited above.

Part I of Chabert's monograph is a somewhat pedestrian résumé of socio-economic methodology on "economic structure" and of the history of the quantity theory of money from the Greeks to Hansen. It is distinctive mainly by reason of Chabert's admiration for Cantillon's statement of the quantity theory together with its necessary modifications. He regards Cantillon (*pace* Adam Smith) as "the greatest economist of the 18th century" (p. 36) and he considers his own work as in large part "a return to Cantillon" (pp. 241-45). This Part is impressively, sometimes oppressively, documented, although the English-language references are marred by more than the usual number of minor footnote errors. A noteworthy omission is the newer "Chicago School" (L.W. Mints and Milton Friedman in particular) who have sought the rehabilitation of a generalized form of quantity theory in developed countries, the very areas where Chabert seems willing to abandon it. The Chicago publica-

tion most directly in point, *Studies in the Quantity Theory of Money* (edited by Friedman and Phillip Cagan) unfortunately appeared while Chabert's volume was in press. It would have added to many readers' interest had he been able to compare and contrast their positions with his own.

M. BRONFENBRENNER

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Federal Reserve Operations in the Money and Government Securities Markets. By ROBERT V. ROOSA. (New York: Federal Reserve Bank of New York. 1956. Pp. 108.)

The functions of the Federal Reserve System are discussed in this pamphlet as *defensive* and *dynamic*, but the two sets of functions are treated as interdependent. The defense is against consequences of accidents such as temporary or seasonal shortage of reserves, or of the flow of funds between regions. The dynamic functions, which were instituted by the Bank Act of 1935, are for the ends of positive policy intended to aid expansion of investment or to produce contractionary effects. Open-market operations are given as an example.

The central part of the money market is the banks and the apparatus by which their liquidity is maintained. The "goods" in the market are the "active margins of bank reserves," and near-money credit instruments. There is a clear explanation of two functions of the market: (1) the use of excess reserves as checking deposits vary, and provision of reserves when there is a deficiency, and (2) transactions in secondary reserves, which are liquid assets held by the banks. The defensive role of the Federal Reserve in the market is shown as one of distribution of reserves, and its dynamic role as one of variation of reserves in accordance with policy decisions.

Dealers "make" a large part of the market in government securities. They purchase from banks, thus enabling the latter to obtain funds, and on the other hand banks lend to dealers. Thus the dealers act as buffers between banks. Dealers also obtain funds from the Federal Reserve by selling securities under an agreement to repurchase.

The booklet also contains a routine description of the components of the New York money market as the main part of the whole.

The functions of the Treasury as represented by the Federal Reserve's Trading Desk are clearly explained. In this section the inadequacy of the defensive functions, for stability, and the indispensability of the dynamic functions, are shown. Positive policy decisions are based on two sets of forecasts, prepared daily, but even with the aid of these and statistical records of past situations similar to the present, a market operation may produce only approximately the results expected. The activities of the Federal Reserve System in the money and securities markets have to be continuous from day to day.

The pamphlet is almost entirely explanatory and admittedly incompletely so. It should nevertheless prove to be a helpful, introductory work for graduate students or anyone who has read a standard book on money and banking.

WILLIAM E. GORDON

Marquette University

Monetary Studies 1-6. (New York: Economic Policy Commission, American Bankers Association. 1955. Pp. 146.)

This service constitutes essentially a short course in the economics of money and banking aimed primarily at bank officers. The potential usefulness of the series is illustrated by the recent experience of a money and banking teacher. Several of his students took some T-account analyses of monetary operations to a local bank officer for elucidation, found him unfamiliar with the monetary implications of the transactions, and returned wondering whether they had been studying the sort of material appropriate for a course in money and banking after all.

The attempt here is to present the important characteristics and problems of our monetary system. To this end the following major subjects are treated in order after an introductory overview: the commercial banking system on the "supply" side of the credit market, including deposit creation, the role of reserves, and factors affecting bank reserves; the commercial banking system within the general money market, including a classification of various types of credit and a brief survey of the composition of the money market; the effects of Federal Reserve policies; the effects of Treasury operations; basic issues of monetary policy.

The studies have the virtue of erring less than most textbooks in obscuring some fundamental monetary principles with detailed discussions of the nuances of monetary and financial institutions. It is noted at the outset that the studies "omit masses of material that would be contained in an academic treatise in this field"; one such omission is a treatment of the reserve and collateral requirements defined for the Federal Reserve System which have shaped and restricted policy in critical periods of our monetary history. But, partly for these reasons, teachers in the field might well find portions of the series suitable as supplementary references for their classes. The T-account illustrations in the appendices should be useful in developing an understanding of the effects of commercial bank, Reserve System, and Treasury transactions. Throughout, the format has eye-appeal.

Many readers would be primarily interested in the last three of the six studies, encompassing monetary-fiscal-debt policy, as reflecting considered opinions of American Bankers Association spokesmen. As with most reviews of monetary objectives, methods of implementation, and the degree to which we have used or ought to use such methods, the reader should exercise some discernment in separating the issues as presented. For example, there are the related but distinct questions of (a) the extent to which the Federal Reserve System has actually utilized methods of implementing a stabilization objective, and (b) the conclusions yielded by the available evidence concerning the effectiveness of monetary policies if forthrightly pursued.

The references to the 1953-54 recession are a case in point. There is, in these studies, a rather uncritical acceptance of the public pronouncements of the Federal Reserve authorities that their open-market policy through 1954 was in fact a significant antirecessionary policy. What will the record show? In the latter half of 1953 a customary seasonal expansion pattern in security holdings by the Federal Reserve System combined with the unseasonally slow growth in bank loans to reduce the pressure on bank reserves. But it is difficult to

distinguish the behavior of the System during this period from that of the preceding year when inflationary pressures appeared dominant. Then for months from the end of 1953 into 1954 the System was a net seller of U.S. Governments to an amount of over a billion dollars. A quarter of a billion of these sales were concentrated in one short week in February in response to what the New York Bank called the threat of a "sloppy" money market, after which the net change in System security holdings was negligible for the next three months. The effect of this, combined with other factors influencing member-bank reserves, was the usual substantial seasonal decline in total reserves and no perceptible easing in free reserves; and this was a period of noticeable recession, recognized as such at the time. Such behavior would seem to bear greater similarity to the System seasonal pattern than to an "active" easy money open-market policy. The recession was mild, reaching a bottom in the summer of 1954, but one is hard put to ascribe much thanks to the monetary actions employed. At the most, one can say that the System was neither forced or inclined to foster a contraction within the banking system and this, in itself, is a substantial advance over the fiasco of the early 'thirties.

On the other hand, in the face of our failure really to pursue a timely monetary policy in 1954, and in 1949 as well, it is impossible to conclude from the evidence that monetary measures are useless in a time of developing recession, contrary to some ill-informed but widely held opinions. Nothing in this evidence denies the hypothesis that a vigilant control over the money supply can influence expenditures and promote stabilization during an incipient recession. Moreover, as these studies maintain, the pursuit of stabilization by general monetary policy is consistent with a private enterprise economy; it is as impersonal as the price system; it infringes to a minimum degree upon free choices among alternatives presented by the economy to enterprises and households.

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Public Finance; Fiscal Policy

Handbuch der Finanzwissenschaft. Vol. II, rev. ed. Edited by WILHELM GERLOFF and FRITZ NEUMARK. (Tübingen: J. C. B. Mohr, Paul Siebeck. 1956. Pp. xii, 815. DM 62.)

The *Handbuch,* the first volume of which appeared thirty years ago, is familiar to students of public finance as an outstanding reference work. Changes in fiscal institutions and in fiscal reasoning during the past decades have been great enough to warrant its overhauling. In its second edition the size of the work has been increased from three to four volumes. One of the two original editors, Wilhelm Gerloff, helped to prepare the revision, but did not live to see its completion. The new second—and, since Gerloff's death—only editor is Professor Fritz Neumark, Gerloff's favored disciple who succeeded him in the chair of public finance at the University of Frankfurt. Though written in German, the symposium is not entirely a product of the German mind. To the two volumes already completed, American, English,

French, Belgian, Swiss, Italian, and Scandinavian authors have made significant contributions. In the following review the first volume, published in 1952, will be neglected. I shall concentrate on the second volume dealing with the two subjects of public expenditures and public revenues.

As far as public expenditures are concerned the discussion is rather fragmentary. After an excellent start made by the well-known Belgian author Maurice Masoin, who discusses some fundamentals, no less than three articles are devoted to the determination of governmental salaries, especially in France, Belgium, England, Germany and the United States. The first part of the volume concludes with a thorough though brief analysis of "real" expenditures by Kurt Heinig of Stockholm. In the discussions some important topics have been touched only slightly or have been entirely overlooked: for instance, public expenditures and national income; the impact of public expenditures on the allocation of resources, employment, general price level, and price structure; compensatory spending; and problems of measurement.

The second subject, public revenues, has been more adequately treated. The opening article, by Theo Keller, deals with the general role and some selected problems of public and semipublic enterprises. Later the discussion turns to some minor sources of public revenues: fees (by W. Gerloff), and "contributions" (*Beiträge*) and special assessments (by R. Büchner). Naturally most of the articles cultivate the large territory of taxation. In the following remarks, only some of them will be discussed.

The most sensitive subject, the theory of taxation, has been divided among three writers: the senior editor Gerloff, Günter Schmölders, and Carsten Welinder. As can be expected from the title of Gerloff's article, *Steuerwirtschaftslehre,* he elaborates on the economic aspects of taxation. Fiscal theorists will appreciate that he has finally abandoned some of the orthodox notions he previously defended, even in an article under the same title, incorporated in the first edition. For instance, he now distinguishes between two classes of taxes: those used for financing government and the others intended to influence human behavior. The first class is called *Finanzsteuern,* while the second class bears the less adequate name *Ordnungssteuern.* The significance Gerloff attributes to this distinction, may be gathered from the fact that, from the same point of view, he speaks of *Ordnungsfinanz* and claims that it comprises "rational finance" (A. H. Hansen), "social finance" (William H. Beveridge), "political finance" (R. v. Keller) and "functional finance" (A. P. Lerner) as its subdivisions (p. 259). In other respects, however, Gerloff refuses to yield ground. For example, he reproduces his doctrine on "the resistance to taxation" in almost the same way as he stated it in the first edition. It will hardly meet with more acclaim than it did in the past. Tax resistances—he thinks—appear in many variations. Some of them result from the defects of government organization such as inefficiency in the enforcement of tax laws and in tax collection. Others originate from legal and illegal reactions of the taxpayer, such as tax avoidance and tax fraud. Under no conditions, however, should the notion be understood as comprising shifting and transformation of taxation because those reactions of the taxpayer are intended to reduce only his individual tax burden while tax resistances reduce

the revenue of the government (p. 292ff). It thus seemed pertinent to the editors to invite another expert to elaborate on the riddles of tax shifting.

Though Welinder's analysis of this subject winds up in a highly skeptical mood, it will fascinate readers involved in economic theory. Since he relies primarily on the general equilibrium approach, the vagueness of his conclusions is not surprising. Also Welinder admits that, by disregarding the specific character of taxes, the global approach has "no practical significance" (p. 355). He even points out that no final solution can be found without comparing an economic order which provides for taxation with some unreal economy without any public sector.

The third article of the theoretical group deals with "tax systems and systematization of taxes." In this context Schmölders suggests a novel way to classify taxes—using their degree of shiftability as *principium divisionis*. From this point of view, those taxes which can be passed on with relative ease are called "taxes on the market" or *Marktsteuern*. For the others he chooses the name of *Masssteuern*, which could be translated as "yardstick taxes." *Faute de mieux* this classification may be helpful though it is exposed to objections similar to those made to the old physiocratic dichotomy of direct and indirect taxes from which it has been derived. Shiftability depends on many factors. As our leading experts in this field have shown—and Welinder also in the article just reviewed—the kind of tax may play a less decisive role than the forms of the market, the phase of the business cycle, and the uses of governmental revenues.

Almost half the volume has been reserved for a detailed discussion of particular taxes. Some articles like those on income taxes (Henry Laufenburger), war profit and increment taxes (Carl S. Shoup), "real taxes" or *Extragssteuern* (Wilhelm Bickel), inheritance and gift taxes (Richard Büchner) and turnover and consumption taxes (both articles by Günter Schmölders) deserve high praise. In general, they provide detailed information on the tax structure and tax policy of various countries, especially France, England, Germany, Switzerland, the United States, and Soviet Russia. In addition, there are two more general articles on the techniques of taxation and on tax auditing. Going beyond description and analysis, some authors disclose their preferences as to the solution of major tax problems. According to Laufenburger, for instance, some undeniable defects of general income taxation could be alleviated by its partial replacement by a value-added tax, as established in France since 1947 (p. 500)—a suggestion, with which Schmölders seems to concur (p. 595ff.) The volume ends with an excellent discussion on intergovernmental fiscal coordination by W. Bickel. He includes in his article also some timely considerations on international fiscal coordination between sovereign states in connection with tariff and economic unions and, more specifically, the European coal and steel community.

It is difficult indeed to characterize in general terms a team of so many authors, each with his own philosophy, temperament, and experience. Allowing for major differences in method, concepts, and objectives, it can be stated, however, that most of them envisage public finance as an area subject to the

condominium of several sciences such as public administration, political science, law, economics and sociology. With only few exceptions they oppose a purely economic approach. The senior editor of the *Handbuch* goes even beyond this by denying the basically economic character of taxation. As he states, taxation is "not an economic, but a historical-legal category" (p. 251). This conception, however, hardly provides the sort of atmosphere within which studies on fiscal theory and fiscal policy can thrive.

Such an orthodox, if not cameralistic, approach will nevertheless appeal to those readers who look primarily for empirical and historical information and are mainly concerned with political, administrative, and technical considerations. To this group the *Handbuch* makes its chief contribution. If the following volumes can maintain the level of the first two, the *Handbuch* will remain a standard work, highly esteemed and frequently consulted by fiscal administrators and fiscal institutionalists.

FRITZ KARL MANN

The American University

Traité de politique fiscale. By MAURICE LAURÉ. (Paris: Presses Universitaires de France. Pp. 425. 1.400 fr.)

In spite of its title the treatise confines itself to the discussion of the tax system and does not deal with the entire domain of fiscal policy as that term is understood in this country. The determination of the means of raising governmental revenue, the problems of the management of the debt and the maintenance of full employment and price stability are considered by the author to fall within the purview of budgetary policy. He concerns himself with tax structure and tax policy only although he fully admits the close connection between the two branches of public finance.

The first part of the book deals with the frontier between tax and budgetary policy, with the political underpinnings of tax theory and with some of the basic premises of the tax system. The second part discusses the economics of the tax structure, tax shifting and incidence, and the effect of taxes on the processes of production. Separate sections are devoted to taxes on commodities, on income and on capital transfers. This part ends with a discussion of taxable capacity and the measurement of tax burdens.

In the third part can be found matters seldom included in works on public finance. In it M. Lauré discusses the international aspects of taxation, the tax problems of common market areas and those of a customs union.

The last part deals with the psychological premises of tax policy. Included are the political, legal and administrative problems of tax policy, the problems of social control and those of evasion and compliance. The book ends with an appendix containing a brief discussion of the basis of tax policy under totalitarian regimes.

Even though the book draws largely on the French tax system for its illustrations and arguments, the work purports to be more general in scope. It sets itself the ambitious task of tracing out a complete theory of taxation that would form the basis of a tax policy applicable to all advanced democratic

societies. There are frequent references to and comparisons with the American tax system and many conclusions and generalizations applicable to both countries.

The purely economics part of the treatise follows the major outlines of a standard textbook on taxation. If anything, the exposition is somewhat less rigorous than that found in a good American public finance text. Lauré, who has held several high positions in French tax administration, is not a professional economist even though his knowledge of the literature is impressive. An American student may be a little hesitant to accept the statement that taxes on consumer goods do not interfere with the optimum allocation of resources or that money income is subject to diminishing marginal utility. It also seems a little surprising that in his essentially partial equilibrium analysis of incidence, the author does not employ supply and demand elasticities but talks instead of taxes being shifted forward from the "economically strong" to the "economically weak" (pp. 59 and ff.). The author, one of the sponsors of the French value-added tax that has, since 1955, replaced the multiple-stage turnover taxes, deplores the fact that commercial transactions, artisans and many public enterprises are still subject to these gross receipts and transactions levies.

Lauré has many challenging things to say about individual income taxes. He shows that the French tax and parafiscal system has redistributed the national income downward. He argues however that this redistribution of income might have been due also to the increased productivity of the French economy that emphasizes the more efficient provision of goods for mass consumption, thus benefiting the lower reaches of income distribution. His conclusions may be compared with those reached by Rottier and Albert in *Income Redistribution and Social Policy,* who show that the French social services have had greater impact on horizontal rather than on the vertical distribution of income. Lauré is not unaware of this and has some disquieting things to say about the extra-heavy burden borne in France by the salary earners, the "backbone of a democratic society."

In criticizing the current concept of taxable income Lauré comes close to the position recently advocated by Kaldor. Lauré suggests that progressive rates should apply only to that part of income that is spent. Saving should be taxed at a flat rate.

The French system of "family quotients" has been commented upon by several students of public finance. It is alleged to be more equitable than the American system of flat personal exemptions. Lauré lauds the provision of the 1954 Internal Revenue Code granting half of the advantages of income splitting to heads of households but contends that this privilege does not go far enough. Under the French system each child adds one half of a point to the "quotient." Thus, a married couple with 4 children would divide its net income by 4 and multiply the tax liability by 4, to obtain its total liability under the individual income tax.

Of special interest to students of comparative tax systems is the author's calculation of the relative tax burdens in France and the United States. His

general conclusion is that the U.S. system, if applied in France, would yield only 60 per cent of the actual French yield (pp. 193 and ff.). In other words, the burden of French taxes in France is 5/3 of the corresponding burden in the United States. This is so largely because the burden of the income tax, long considered the neglected tax in the French system, actually bears more heavily on taxpayers in that country. Lauré calculates that the yield of the federal income tax would be one-tenth of its present yield were the tax imposed in France.

The discussion of the international aspects of taxation is in the classical tradition. Lauré points out that it is not the absolute level of costs but the differences in cost ratios that form the basis of the gains from trade under the doctrine of comparative advantage. While he admits the need for protecting infant industry under a customs union he argues in favor of a "fiscal contract" or a sliding scale of subsidies in preference to tariffs (p. 276).

The reading of the last part of the treatise is likely to prove most rewarding. It is in many respects a unique treatment of the *imponderabilia* of tax policy, its administration, enforcement and compliance, and is strongly reminiscent of Blough's *Federal Taxing Process* (New York, 1952). Particularly perceptive is Lauré's treatment of evasion. He argues that tax evasion is greatest and easiest on the part of professionals, small business and commerce. Comparing French and U.S. practices of evasion he asserts with conviction that the situation is very similar in the two countries. The allegedly greater problem of tax fraud and evasion in France Lauré ascribes to the circumstance that groups with facilities and aptitude for evasion are relatively more important in that country (p. 369).

Perhaps the greatest value of this book lies in its emphasis on the point that many of the problems of tax policy and tax administration arise out of the similarity of "human nature" in societies with common heritage and common civilizations. Much of what Lauré has to say about the "vigor of special privileges," is echoed in this country in discussions of corrosive effects of what Heller calls the "most favored taxpayer" principle.

ALEK A. ROZENTAL

Saint Louis University

New Sources of Local Revenue. Report of a Study Group of the Royal Institute of Public Administration. (London: Allen & Unwin Ltd. 1956. Pp. 260. 25*s*.)

The study on which this report is based was undertaken because of the concern of the Royal Institute of Public Administration with the increase of central financial aid to local authorities and the resulting decline in local autonomy. The study-group comprised representatives from the national and local governments and students of local finance from the universities. The final report is largely a comparative study of the sources of local taxation in 13 countries.

The report begins with a careful analysis of the problem of local finance in England and Wales. The difficulties noted are those familiar to us in the

United States—the inadequacy of real estate as the only important local tax base, inequitable assessments, increasing exemptions, the regressivity of the tax in practice, and the uneven geographic distribution of the base.

Although local rates are not the primary object of the inquiry, the group does recommend some decreases in exemptions, and gives serious consideration to the possibility of substituting capital values for rental values. The description of the rating system is probably one of the most useful parts of the study for the American student of local finance, and should be read by all who argue that the British rate system is superior to our own tax on capital values.

The main body of the report deals with the other taxes employed by local governments in various countries. It is noted that the only countries among those studied in which local taxes amount to more than 20 per cent of all taxes levied are those that levy local income taxes. A special study of the Swedish local income tax comprises nearly half of the total volume. This, too, should prove useful to local-finance students in this country.

The group as a whole strongly recommends giving the British local authorities the power to levy low-rate taxes on earned income. They also recommend the transfer of the entertainments tax and motor vehicle and drivers' licenses from the central government to local authorities. They do not recommend the use of sales taxes, citing American experience with this as a local tax as basis for their opposition. They also question local taxation of motor fuels, although they suggest that this might justify further study.

The report as a whole is a well-balanced presentation of the current problems of local finance in England and Wales, and it offers constructive solutions. Its interest to the American student lies partly in the detailed accounts of the British rating system and the Swedish local income tax, and partly in the brief but careful presentation of trends in local finance, and current inadequacies. These indicate that the trends and problems are much the same in all industrialized countries, and that comparative studies such as this can make an important contribution to our understanding.

MABEL NEWCOMER

Vassar College

International Economics

Sterling Dollar Diplomacy. By RICHARD N. GARDNER. (New York: Oxford University Press. Oxford: Clarendon Press. 1956. Pp. xviii, 423.)

A few years ago, Viner noted that "despite . . . the elaborate planning and negotiation and the impressive array of agencies, charters and noble pronouncements, the world is without effective formal organization today."[1] The International Monetary Fund virtually suspended operations during the critical period following the end of the war. The International Bank which was expected to play a leading role in the reconstruction of the war-devastated

[1] J. Viner, "Economic Foundations of International Organizations," *International Economics—Studies* (Glencoe, 1951), p. 380.

economies was reduced to lending relatively small sums to underdeveloped areas. The charter of the International Trade Organization failed to win Congressional or Parliamentary approval, while the principles enunciated in the Anglo-American Financial Agreement were repudiated by Britain within a few months of their implementation. In *Sterling Dollar Diplomacy*, Dr. Gardner presents a detailed account of the Anglo-American economic conferences during the war and early postwar periods and suggests reasons for their failure to produce workable international organizations.

On one level, Gardner's study is a history of the rejection by Britain of the American government's program for the reconstruction of the world economy. As is well known, the three major planks of this program were the reestablishment of a multilateral trade and payments structure, the restoration of currency convertibility, and the universal adherence to the nondiscriminatory principle. Since these have long been textbook ideals, it is legitimate to inquire why they proved so unacceptable in the postwar period. Gardner finds the answer to this question in three "errors" of American diplomacy. The first was the failure to perceive that economic policy cannot be formulated in a political vacuum. The second was the refusal to consider the special difficulties of particular countries; while the third was the belief that international cooperation can be secured simply by gaining acceptance for detailed codes of formal principles. The first two "errors" led to rigidities in American thinking which could not but have adverse effects on the outcome of the negotiations. The third contributed to complacency once the ceremony of affixing signatures to impressive-sounding documents was over, without a full realization that the implementation, or rather the interpretation, of principles was much more significant than their formal acceptance.

While Gardner's analysis of the reasons for the breakdown of the war and early postwar negotiations is sufficiently comprehensive to embrace all plausible explanations, this reviewer would place greatest emphasis on the failure to understand the nature or the magnitude of the postwar disequilibrium. This resulted in the development of a chasm between the policies actually advocated and those required to rectify the unbalance. The positions of both the British and American negotiators were derived in large part either from the experience of the interwar period or from economic models which were predicated on a greater degree of "normalcy" than in fact existed. There was, in general, an inadequate appreciation of the basic changes in the world economy wrought by the war, or of the severe nature of the disequilibrium which rendered policy conclusions derived from "ideal" models inapplicable. Keynes' refusal to entertain the possibility that balance-of-payments difficulties can result equally from the inflationary policies of the deficit countries as from deflationary pressures in the United States is an example of the manner in which a fixation on the experience of the interwar period precluded clear thinking. The American government's insistence on the almost immediate restoration of sterling convertibility and the adoption of the nondiscriminatory principle is an example of the tendency to advocate policies derived from models without, apparently, the slightest realization that under conditions of severe dollar shortage, the adoption of these policies could

lead to a contraction in the level of trade rather than to the desired expansion. This tendency was all the more deplorable in that it furnished the advocates of bilateralism with arguments that their basic position did not warrant.

In the absence of a clear understanding of the nature of the postwar problem, the American government was ultimately forced to fall back upon ad hoc arrangements. The Europeon Recovery Program provided the finance necessary for reconstruction without which the International Monetary Fund could not function. The Intra-European Payments Schemes and the European Payments Union permitted, if indeed they did not sanction, discrimination against the dollar area, while negotiations under the General Agreement on Tariffs and Trade resulted in a reduction in American tariffs without exacting the removal of preferences as a *quid pro quo*. It is significant that as a result of the improvement in the world economy made possible by these and other developments, the United Kingdom ultimately took important steps down the road charted by the American negotiators in the early postwar period.

With the assumption by the United States of the economic and political leadership of the Western world, an analysis of the influences shaping American diplomacy takes on added significance. Gardner's well-written and detailed account of American economic diplomacy during a crucial period thus deserves a wide audience. The moral that emerges from his study has current relevance and should be pondered not only by students of international economics but by all who are interested in the development of American foreign policy.

ELLIOT ZUPNICK

The City College of New York

What the Tariff Means to American Industries. By PERCY W. BIDWELL. (New York: Harper & Brothers, for the Council on Foreign Relations. 1956. Pp. xvi, 304. $5.00.)

Nearly a half century ago F. W. Taussig wrote a book which attempted to consider the tariff, not in the abstract, but as it applied to various industries.[1] During the past 40 years the United States Tariff Commission has published an impressive list of tariff studies for individual industries. After the conclusion of many of the trade agreements the Tariff Commission has also published reports which give at least brief information concerning each of the products subject to "concessions" in the agreements. But an up-to-date study in the Taussig tradition of the actual situation in industries currently clamoring for increased tariff protection was long overdue. Mr. Bidwell's recent book should go far toward meeting this need.

Eight specific industries are analyzed in some detail: glassware, household china, bicycles. watches, woolens and worsteds, iron and steel, synthetic organic chemicals, and large electrical equipment. He tries to view the impact of tariff changes on these industries, not only from the national or inter-

[1] F. W. Taussig, *Some Aspects of the Tariff Question* (Cambridge, 1915).

national point of view, but also from the local point of view as they affect corporation profits and laborers' wages and employment. The author was assisted in his study by a committee composed of members of the Council on Foreign Relations and of competent outsiders in the field of tariff policy. He also spent much time interviewing corporation executives, factory managers, importers and buyers. The result is a book which comes to most of the same judgments one would ordinarily expect from a liberal economist, but supported by concrete evidence which has been gathered with far greater care and interpreted with less obvious bias than has at times characterized the sweeping generalizations of the academic profession.

The conclusion is inescapable that the tariff is relatively unimportant to American industries. In the glassware industry American manufacturers supply the great bulk of the American market. A section of the industry, however, has been concerned recently by the reduction in domestic production and increase in imports of handmade stemware. But this certainly has been caused as much by the competition of machine-made stemware and above all by a change in American living habits as by reductions in the tariff, and no increase in the tariff could meet this basic problem.

The duty on watches assumed international significance in 1954 when President Eisenhower raised the rates on some kinds of watches and watch movements by as much as 50 per cent above those established by the Swiss trade agreement of 1936. Since national defense considerations were mentioned as influencing his decision they also play a paramount part in Bidwell's study of the industry. He finds that lack of imagination in methods of production and marketing has been a major cause of the difficulties of American watchmakers. He feels that other industries could supply most of the defense needs for precision workers in small objects, and he points out that if defense needs could not be met in this way they should be met by the use of subsidies rather than tariffs.

The national defense argument arises at a number of other points, especially with respect to synthetic chemicals and heavy electrical machinery. Although foreign producers can meet American competition in a few highly specialized branches of these industries, the tariff is clearly of very marginal significance for the industries as a whole. Bidwell is disturbed, however, with the possibility that the provisions of the 1955 Reciprocal Trade Agreements Act, which gave the Office of Defense Mobilization authority to determine whether there is reason to believe that imports of any commodity threaten the national security, may become a more potent weapon for tariff increases than the escape clause of trade agreements and the well-worn pauper labor arguments for tariffs. The case of heavy electrical machinery gave the author an opportunity to observe an industry in which the effects of the Buy American Act are of far more significance than the tariff.

Although written primarily as a report to the general public and in a style which assumes no technical training in economics for understanding, college teachers of economics should find in this book valuable collateral readings for the tariff sections of first-year economics courses as well as for more specialized courses in international commercial policy. If some sections read like

a primer of the basic arguments against tariff protection we should at least welcome the book for the new and fresh illustrations which it provides.

CARL KREIDER

Goshen College

Tariff Procedures and Trade Barriers: A Study of Indirect Protection in Canada and the United States. By G. A. ELLIOTT. (Toronto: University of Toronto Press. 1955. Pp. xiii, 293. $5.95.)

The author's purpose is to promote a better understanding of the burdens imposed on the economic life of a country by the procedures its government may use or develop to secure compliance with its tariff legislation and certain other laws relating to the maintenance of sanitation and health, the prevention of misleading labeling, packaging and advertising, and the protection of copyrights, patents and trade marks. The book is illustrative and descriptive rather than statistical in character. It focuses on procedural barriers as they are encountered by Canadians when importing into Canada or exporting to the United States.

Though Professor Elliott specifically disclaims that his study can be regarded as a general comparison of the total protective effects of Canadian and United States procedures respectively, his book is especially valuable in enabling the reader to obtain a point-by-point comparison or contrast between Canadian and American methods of using various devices of indirect protection. Separate chapters are devoted to an examination of the opportunity for indirect protection in (1) the increasing complexity of the tariff structure and its administration, (2) the requirements pertaining to entry and documentation, (3) the regulations on liquidation and litigation, (4) the recourse to ambiguous or split classification of tariff items, (5) the valuation procedures and antidumping duties in the United States, (6) the valuation and antidumping duties in Canada, and finally (7) the enforcement of other restrictive measures relating to marks of origin, health and sanitation, food and drugs, etc.

The most considerable general difference between the customs procedures of the two countries is the greater frequency of judicial appeal in the United States. The author notes that the development of a group of specialized customs attorneys in the United States helps to ensure that the provision for appeal will not be unduly diminished in the foreseeable future. In Canada, on the other hand, the extent of procedural protection against imports is regarded primarily as a political rather than judicial question, and recourse to such protection has varied with the general state of domestic business activity and foreign trade.

It is difficult to read a book on this subject without experiencing a steadily growing conviction that governments have a natural propensity to function as agencies of delay and obstruction in a trading economy. They manage to slow down and thin out international economic life, even when their declared public purpose is to encourage imports by lowering tariff rates. Natural propensities apart, however, Elliott reminds us that the system of adminis-

tration and judicial procedures surrounding import policy has usually been intended to be protectionist in character in both Canada and the United States. If perchance this has occasionally been forgotten in an excess of zeal for reform and simplification, government officials and committees are likely to be promptly reminded what their responsibilities really are. For instance, during the Congressional hearings on the Customs Simplification Bill of 1953, the representative of the Pin, Clip and Fastener Association deplored the tendency of Treasury officials to justify their recommendations for reform in terms of efficiency in protecting the revenue. "Rather," he stated, "the analysis of procedure, or a simplification of that procedure, should be looked at in terms of the protection and intended protection to be granted to American producers."

While Elliott takes the general position that the methods of indirect protection are worse (or less good) than direct obstacles to trade, he maintains a judicious balance in his painstaking and patient analysis of the intricacies of the system. Only in the chapter on the classification of items for tariff payment purposes did this reviewer note an occasional lapse into words like "reprehensible," "schizophrenic," "conundrum," "monstrosity" to describe the ultimate decisions made on controversial items.

The author is also careful to point out that Canada and the United States are probably not the worst offenders in any over-all assessment of procedural obstruction as practiced by various nations. For instance, in neither of these countries are bribes or gifts to customs officials a necessary and important part of the cost of importing merchandise; nor do importers in these countries sustain massive losses from pilfering or spoilage as a result of the gross inefficiency, dishonesty, carelessness or ill-will of government officials.

Nevertheless, both countries have at various times, particularly in the 1930's, made extensive use of indirect protection to discourage imports. For instance, in the depression decade Canada fashioned a system of antidumping duties and official valuation of imports which was sufficiently restrictive to render unnecessary the use of import quotas and exchange control. The United States has evolved a method of valuation for customs purposes which, according to the author, is "probably unrivalled in its precision, in its intricacy, and in its general effectiveness in producing uncertainty and delay."

MAX GIDEONSE

Rutgers University

The Sterling Area in the Postwar World—Internal Mechanism and Cohesion 1946-52. By PHILIP W. BELL. (London: Oxford University Press. 1956. Pp. xxvi, 478. $10.10.)

This book is a worthy addition to the postwar literature on the sterling area and its future. It is concerned for the most part with the internal working of the sterling area in its monetary aspects. The most distinctive feature of the volume is that it contains a wealth of detail on monetary institutions, practices and policies in sterling area countries. While one might quarrel with some of the detail, this is a particularly impressive achievement in view

of the fact that the author is American. There are also many shrewd theoretical and empirical comments upon adjustment processes in the balance of payments and upon monetary processes generally. Most of the study terminates in 1952 although some effort was made to bring it up to March 1955 for publication. The author is, in general, pessimistic as to the likelihood of the sterling area continuing as a cohesive whole in the future. Trading ties, while strong, have been maintained and fostered by controls, and overseas members have developed other trade connections; banking ties to London have become less important; and the United Kingdom, while having provided sizable amounts of capital to the overseas sterling area since the second world war, is obviously less capable of so doing than it used to be. A good bibliography and a useful index are appended. This study is likely to become a standard reference source.

American literature has tended to regard the postwar sterling area as a club, favoring members and discriminating against nonmembers, mainly the United States. Dollar shortage has been an important reason for discrimination and has in turn been aggravated by this discrimination. There is little doubt that an important cohesive element in postwar sterling area arrangements has been a desire on the part of the members to insulate themselves from the United States. Overseas members have feared the instability of the United States economy and the (for them) unpredictable turns in American policy. On its part the United Kingdom has needed Overseas Sterling Area materials and foodstuffs, which it has paid for in goods and investments in member countries. This common American view that the sterling area is a discriminatory club is, however, naive in many respects. Discrimination against countries outside the sterling area exists. But it has not been important in several OSA countries; and it has been declining in recent years both in the United Kingdom and the OSA. Free transfer of funds within the area is often regarded as a feature of the club's arrangements and another indication of discrimination. But there have been many important limitations on transfer within the area, actual and threatened. In addition, London no longer holds the reserves of OSA members exclusively; pooling of dollar earnings is not uniform; and the pattern of fixed exchange rates among members has been broken. One is tempted to conclude that, except for the United Kingdom exchange control, which separates out these countries as "Scheduled Territories," there is little substance to what we loosely call the sterling area! The reader who is skeptical of this somewhat facetious statement might try to define the sterling area as a distinctive monetary grouping.

The future of the sterling area will be mainly a consequence of the likelihood of sterling continuing as an important international currency. Bell, as we have noted, is pessimistic on this score, and he has distinguished company. But new trading and financial arrangements could serve to strengthen—not weaken—sterling's role. Suppose, for example, the OSA buys more in continental Europe and runs a payments deficit, and continues to run payments surpluses with the United Kingdom, while the United Kingdom runs surpluses with continental Europe. In this event, sterling could continue as an important currency of settlement. This possibility seems particularly intriguing in view

of the official suggestion that Britain will consider joining some form of European economic union. While sterling area arrangements are certain to be modified, the important role that London *can* continue to play should not be minimized. There may be "lots of life in the old girl yet."

BERNARD GOODMAN

Wayne State University

Business Finance; Investment and Security Markets; Insurance

The Pattern of Financial Asset Ownership, Wisconsin Individuals, 1949. By THOMAS R. ATKINSON. (Princeton: Princeton University Press, for the National Bureau of Economic Research. 1956. Pp. xviii, 176. $3.75.)

The statistical data presented and analyzed in this book relate to but a single year, 1949, and to only one state, Wisconsin. Notwithstanding its somewhat limited scope, however, the author has made a significant contribution to current literature on the general subject of savings and investment.

The study is based on an analysis of 3,462 individual (or joint) state income tax returns for 1949, selected from a universe numbering approximately 1,000,000. Returns of partnerships, corporations, and fiduciaries were excluded. The 3,462 units finally selected had one common characteristic: they all reported interest or dividend income, and thus offered evidence of ownership of financial assets. The types of financial assets covered by the survey include the three broad categories of savings deposits and related claims; corporate, state and municipal bonds, notes, and mortgages; and corporate stocks. The financial assets omitted from the survey for lack of information include cash, demand deposits, life insurance, bonds and other debt instruments in default, and stock which paid no dividends in 1949. All obligations of the United States government are excluded. It is estimated that the financial assets for which data are available account for almost one-half of the total value of all such assets held by individuals.

Analysis indicates the existence of patterns of savings allocation characteristic of different income groups. It is, however, carefully noted that the relationship existing between the size of one's income and the various types of financial assets making up the individual's portfolio are complex and impossible of generalization.

The analysis appears to confirm many of the broad preconceptions regarding investment preferences of different income groups. For example, it indicates that lower-income groups seem to favor debt assets such as savings deposits and related claims, or bonds. The higher-income groups, on the other hand, favor corporate stocks. Over half the value of time deposits, related claims, and about half of direct debt assets, were held by individuals with less than $5,000 income. This same income group owned less than one-third of the total value of corporate stocks. For each type of financial asset, both the frequency of ownership and median size of the holding tended to increase for successively higher income groups. However, the distribution among the income strata of various types of financial assets differs widely.

The relationship between income status and ownership of various types of financial assets is subjected to thorough analysis. Considerable attention is devoted to the implication that the income of an individual determines to a large extent the pattern of his financial assets. But the study reveals that while size of income is of great importance, nonetheless there are other lines of causation that are significant. For example, total income is in part determined by investment income. The presence of income-earning financial assets is important in shaping the distribution of income. Furthermore, ownership of particular assets partially determines the size of wage and salary income through the exercise of substantial or controlling stock interest.

The analysis also points to some correlation among the income level of an individual, his occupation, and the size of the community in which he lives. It was found that there were significant differences among occupational groups as to types of assets held, both as to frequency of ownership, and as to the shares of total dollar value of each type of asset. The two groups with the smallest proportion of their holdings in corporate stocks were farm operators and unskilled labor. Housewives held a greater proportion of their financial assets, nearly two-thirds of the dollar value, in the form of traded stock. This proportion was larger than for any other group.

Other conclusions were that active interest in business firms with which the investor is closely associated greatly influences the extent of ownership of corporate stocks. Also, the influence of the size of the community upon the composition of financial assets appears to be due to the effect of the type of business organization that is most prevalent in the locality. Apparently too, owners of corporate stocks appear to prefer those of firms located in their own areas, or carrying on substantial business in Wisconsin.

The analysis of traded stock holdings disclosed, *inter alia,* that preferred stocks are considerably more important in the holdings of the lower-income groups than of the higher-income groups, and the lower-income group holds a greater proportion of its traded stocks in issues commonly regarded as conservative than do the upper-income groups. But within each income group, it was found that individuals with small amounts of traded stock generally have more speculative positions than those with larger holdings.

Throughout the analysis, the author presents appropriate data from supplementary sources in order to give the reader a better basis for estimating the quantitative importance of the area under investigation and a better appreciation of some of the problems and concepts involved. Where appropriate, the results obtained are compared with those derived from other studies. The study includes numerous graphs, tabular presentations, and a substantial appendix. The index, however, is possibly too brief.

Throughout the study, the author is ever careful to point out the defects, if any, which may exist in the data. Generally, he is cautious as to the inferences and conclusions which may be drawn therefrom. A possible exception, however, may be his rather brief dismissal of the effect of the capital gains tax in determining the behavior of investors (p. 130).

This is a worth-while study in a field that is apparently attracting more

interest. And although limited in scope to but one year and one state, the study certainly adds to our present knowledge of the preferences of investors for certain financial assets. It is quite possible, too, that this work will stimulate further analysis for different areas and for different periods.

LEROY A. SHATTUCK, JR.

University of Pittsburgh

State Financing of Private Enterprise in Post-War India. By ARUN K. DATTA GUPTA. (Calcutta: Modern Book Agency. 1956. Pp. vii, 184. Rs 9.)

India's experiment with a mixed economy as an institutional framework within which to implement economic development raises a number of questions of interest to foreign observers. Certain spheres of the economy are reserved for the central government and the states, leaving a much larger area open to private enterprise which is assigned an important role in development plans. Moreover, the central and state governments are prepared in some circumstances to extend financial assistance to private firms in the form of loans, grants, direct subscriptions of share capital and other aids.

Any study which gives an account of the various agencies charged with the responsibility for dispensing financial aid, the specific conditions of eligibility for such aid, and perhaps most importantly, the total amount of financial accommodation made available to the various sectors in relation to total public development expenditures, would be, of course, most useful. The little volume by A. K. Datta Gupta undertakes mainly the first of these tasks; it describes in some detail the financial powers, purposes and responsibilities of such agencies as the Industrial Finance Corporation, the National Industrial Development Corporation, the Reserve Bank of India, the State Bank of India, and the state industrial finance corporations which have been established in at least ten states. In addition, some attention is given to those departments of the central and state governments authorized to render financial assistance to private enterprises. Also discussed is the Industrial Credit and Investment Corporation which, though created for the purpose of financing private industrial enterprises, differs from the foregoing agencies in that it is privately owned and managed, but is itself being supported in part by a large interest-free loan from the government of India.

As presented, the statistical data relating to the amounts and forms of financial assistance received from governmental sources are, in some cases, improperly classified and often too confusing to be of much use in showing how much aid has been furnished to private enterprise. For example, some figures include government purchases of ("participations in") share capital in firms in amounts of more than 50 per cent of authorized shares, and in other instances, loans to firms in which governments (central and/or states) may own more than half the capital stock. Do such loans and "participations" represent financing of *private* enterprise? At the same time, it is clear that the full extent of financial assistance to the private sector has not been accounted for.

This book succeeds in showing how complex, ramifying, and overlapping

the machinery is for providing private financial aid. One is left with the feeling that the system is so "mixed" as to defy analysis. But surely this cannot be the case.

EMMETT J. RICE

Cornell University

Insurance and Economic Theory. By IRVING PFEFFER. (Homewood, Illinois: Richard D. Irwin. 1956. Pp. xvii, 213. $4.00.)

This book presents two main theses: first, that the degree to which risk can be reduced or eliminated (rather than merely transferred) by an insurance company through pooling and reliance on the law of large numbers has been greatly exaggerated; and second, that the introduction of insurance reduces the risks which had been inhibiting the action of producers and consumers, and thereby increases economic welfare. It would seem to this reviewer, that the more truth there is in the first thesis, the less there must be in the second.

The discussion minimizing the risk-pooling aspect of insurance takes the first half of the text, some 70 pages. The result is achieved primarily by quoting and discussing various definitions of insurance. The only nondeductive evidence adduced consists of quotations from some actuaries as to the difficulty of their task, most of them dealing with fire, casualty, or major catastrophe risks. The idea that experience allows one to predict average incidence of death (or other disaster) fairly well for groups is dismissed as "the fallacy of actuarial perfection." At one point (p. 73) this is carried so far as to be clearly misleading:

> In essence it [insurance] is a product of the divergence of predictions made by two parties, based, in general, on different sets of evidence. The life insurance company, depending on broad masses of experience, has a relatively low estimate of the insured's probable mortality.

The second half of the text relates insurance to economic theory, particularly that of production, distribution, and consumers' preferences. As in the first half, most of the discussion is definitional, classificatory, and epistemological. In a few cases the treatment of the literature is imprecise (pp. 96, 106) though this is inevitable in such a summary treatment. A discussion among economists around the turn of the century is reviewed. They had wrestled with the problem of risk and uncertainty and concluded that insurable risks were eliminated by pooling and the premiums to the insurance company were part of the costs of production, whereas uninsurable uncertainty was borne by the entrepreneur and paid for in profits. The connection with consumer behavior is via a review of Friedman-Savage without, however, any discussion of more recent theoretical and empirical contributions such as those of Ward Edwards, or Suppes and Davidson.

The basic purpose of the whole section, however, seems to be to make the point that insurance "serves to narrow the dispersion of the alternatives open to the economic unit; it enables the individual to allocate his resources in a more rational manner by reducing part of the inertia-producing risk burden"

(p. 148). This reviewer remains dissatisfied. Some people do seem to have a preference for gambling as well as risk aversion, as the author admits. Perhaps entrepreneurs do too. What would happen to the achievement value of entrepreneurial success if failure were to be impossible? Who can say what amount of risk-taking is optimal for the economy?

There is an appendix on the foundations of probability theory with the purpose of throwing added doubt on the applicability of the law of large numbers to insurance. Again the question remains, if the pooling of risks is imperfect, why is the insurance business such a stable one with so few failures? It is clearly possible, short of actuarial perfection, to *use* probability theory and to make predictions, whether the metatheory of it all is satisfactory or not.

JAMES N. MORGAN

University of Michigan

Appraisal and Management of Securities. By DOUGLAS A. HAYES. (New York: Macmillan. 1956. Pp. v, 383. $4.50.)

Professor Hayes' work was written for the purpose of aiding security analysts and would-be analysts in making "sound selective judgments and decisions" (p. iv). The general discussion is restricted to investments in corporate securities, and the analysis of individual companies is confined to the industrial field. Reasons advanced for this concentration are: the relative importance of industrial securities in the investment market today; a belief the reader will obtain a "more thorough understanding of the reasoning behind the techniques and processes involved in appraising corporate securities" (pp. 5-6) if consideration of specialized fields of analysis is minimized; and, no analysis of investment quality is required of an important group of securities—U. S. government bonds.

He breaks the investment problem into four parts. In the first section the investor is acquainted with the investment characteristics of the varying types of corporate securities, the various objectives to be sought in the acquisition of these securities and the different theories which may be used as a guide in security-market operations. The second section is devoted to the problems involved in appraising the intrinsic quality of the company. Hereunder such factors as managerial ability, financial strength, growth prospects, stability and competitive position are discussed. The valuation process, that is the translation of all the "evidences of investment quality . . . into estimated values for the securities" (p. 8) in terms of "bench marks of absolute value" (p. 9) is the subject of the third section. This phase of security analysis is accorded substantial weight as the author is of the opinion "all intelligent investment decisions must be related to the prices at which the securities are available in the market" (p. 8). The concluding section deals with the construction and management of an investment portfolio. Unlike most investment books, emphasis is on the problems of the individual investor and only incidentally are those of institutional investors considered.

The author skillfully blends many of the currently popular investment

views with those which have been hallmarks of conservative investors for many years. The result is a well-balanced, well-organized and clearly written book of timely interest founded upon the hypothesis that "intelligent analytical appraisals of investment risks and opportunities will over a period of some years increase the probability of satisfactory results to a significant but moderate degree" (p. iv). Though occasionally conclusions and generalizations are unqualifiedly expressed, the reader is not left to wonder how the author would have applied his own principles and generalizations. Included are examples and standards of performance that will be of aid to the reader in solving his own investment problems because they are both reasonable and current. The book is a worthwhile contribution to the literature in the field of investments.

ADOLPH E. GRUNEWALD

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Business Organization; Managerial Economics; Marketing; Accounting

Automobile Franchise Agreements. By CHARLES M. HEWITT, JR. Indiana University, School of Business, Bureau of Business Research Study No. 39. (Homewood, Ill.: Richard D. Irwin. 1956. Pp. xiii, 287. $6.00.)

This book is concerned with the legal and economic aspects of automobile dealer franchise agreements from 1900 to 1955 and brings together a substantial amount of significant material concerning automobile manufacturer-dealer relations in general as well as automobile franchise agreements in particular. This is a task which has long needed to be done. Also, it is timely in view of recent Congressional hearings on the subject and subsequent passage of the O'Mahoney-Celler "day-in-court" bill. On the whole it represents a thorough study of the legal and economic aspects of automobile franchise agreements in the setting of automobile manufacturer-dealer relations. In discussing the public interest aspects of automobile franchise issues, however, Hewitt has been concerned primarily with legal considerations. The nature of the subject is such that one could rightfully expect equal attention to be given to the economic aspects of the subject.

In his preface the author indicates the basic questions to be answered in his study: (1) When and why did the franchise agreement come into use in the automobile industry? (2) What were the basic characteristics of the early automobile franchise agreements, and how and why have automobile franchise agreements changed over the years? (3) How have the courts viewed automobile franchise agreements and the various legal relationships that they create? (4) Should the courts reappraise the entire area of franchise law? (5) What are some of the public-interest aspects of certain issues that are related to automobile franchise agreements?

Library material and trade publications were used extensively in this study, but apparently the most important source of information was the reported franchise cases, both early and recent. The author has used these

cases (approximately 175 appear in an alphabetical list) not only to illustrate legal points, but to furnish economic data as well, reminding the reader untrained in law that allegations made in lawsuits are not necessarily true. It is also important to recognize that litigation usually reflects unusual rather than typical situations in an industry.

Of fundamental importance is his discussion and interpretation of the economic and marketing aspects of the automobile-dealer franchise problem from a legal point of view, which provides new insight into an old problem. After presenting the basic characteristics of the modern franchise agreement (Ch. 8) Hewitt makes the following statement: "Basically, however, all of the modern franchises follow the same general pattern. This general pattern is based on a philosophy of dealer relations which developed in the early days of the industry. The industry has changed in many respects—but the basic philosophy of the franchise agreement has remained substantially the same." Those with a particular interest in franchise agreements should read carefully the section entitled "A Critical Analysis of the Franchise Relationship" (Ch. 9).

The historical background of the "freedom of contract" concept, an instructive evaluation of this concept in relation to automobile franchise agreements, and a reappraisal of the legal and economic aspects of these agreements is presented by the author in Chapter 10. Also included is a discussion of certain public policy issues relating to the automobile franchise. In the case of the latter, however, Hewitt is concerned with identifying the public interest aspects of these issues from a legal point of view, rather than with public policy as such.

No effort will be made here to summarize the author's conclusions. Of particular interest, however, are the final paragraphs of Chapter 11:

> The automobile manufacturers have contributed much to the high standard of living in America. They have also taken many steps designed to help their dealers. If there are still inequities and possible dangers to the public interest involved in automobile franchise agreements as now drawn, it seems likely that the franchises will be changed in the future. Will the manufacturers, the courts, dealer organizations, or legislation bring about changes in the franchise agreement? What will be the nature of future changes? There is a crucial need for further study in this area. Only facts and logical reasoning will provide the right answers at the right time.

No doubt serious readers of this book will find areas in which they will want to question the author's views, as is to be expected in a study of this nature. It is a scholarly well-documented study, originally a doctoral dissertation prepared under the supervision of a committee well qualified in the fields with which it is concerned. It is the reviewer's opinion that, taken as a whole and viewed in the light of the author's stated objective, " . . . to explore one narrow aspect of this important [automobile] industry," Hewitt has made an important initial contribution to this subject.

ROBERT L. CLEWETT

University of Michigan

The Pattern of Management. By LYNDALL F. URWICK. (Minneapolis: University of Minnesota Press. 1956. Pp. vii, 100. $2.50.)

This book contains a series of five lectures given at the University of Minnesota in April, 1955. Each lecture presents a different facet of the author's philosophy of management. One general concept, however, ties all of it together: that knowledge of the science of management, as developed to date, is built on a foundation of sound principles that should be studied and applied by those entrusted with the direction of business enterprises.

Understanding of management has been retarded by reluctance of people to part with tradition. From an *established* society we have emerged into an *adaptive* society. This transition has become necessary because "the speed of technological change has been enormously accelerated." A social resilience is demanded of all of us, a capacity to adapt our lives to a changing technological environment. The engineer has developed the technology. Now the psychologist is called in to interpret to the manager the attitude of the worker. Furthermore, all those concerned "must reconcile themselves . . . to the far more intricate social discipline which an economy based on physical sciences and power driven machines makes mandatory."

Theorists developed by schools of business administration have a double responsibility: "First, they must be able to present their findings so that they make sense to the unspecialized mind." Second, they must not put forward conclusions that others will accept with greater confidence than the theorist himself feels. There is a common ground on which theory and practice can be melded. Executive training programs in universities are in a measure bringing about the marriage of theory and practice.

In Chapter 3 knowledge of the science of management is traced from Frederick W. Taylor, through the contributions of his contemporaries and the doctrines of later-day philosophers, chiefly Henri Fayol, Louis F. Andrews and Elton Mayo. The author pays tribute to those advocates and a number of others, and assumes, with good reason, that those attending his lectures are familiar with the teachings of all the management philosophers. A reader not so well informed may find some of the references a little obscure.

Governing a business is much like governing a political body, except that the objectives of the two differ. The basic objective of business is to conduct its affairs so as to render a service which society requires. "Proof of society's need for the business is consumers' support of the business by buying at a price which yields a sufficient margin over cost to enable each enterprise to remain in business." Government, on the other hand, "is in large measure a process of ascertaining how people, the members of society, want to live. . . . Business has a great deal to learn from the experience of subsidiary agencies of government which have been engaged in organizing human beings on a large scale for thousands of years."

A diagram of the "pattern of government" on page 65 shows the functions of the various divisions of government and is the basis for a discussion of the parallelism between government and business administration. Government makes laws and enforces them. Business administration is weakened

by lack of discipline. What is known as *consultative management* has merit but may be carried to unworkable limits.

The final chapter is largely built around a discussion of another chart, a "pattern of principles" of government and management. The chart is divided into 8 categories of 9 principles each, 72 principles in all. Thus, in one logical scheme are included all the principles of management that have been enunciated by recognized authority, "a convenient summary of the main headings of our knowledge to date on the last two phases of management: the grouping and correlation of tasks, and the directing and motivating of groups." The chapter summarizes rather well the author's philosophy of management.

C. L. JAMISON

University of Michigan

De Menselijke Factor in de Bedrijfshuishouding en de Bedrijfseconomische Problematiek. By A. de JONG. (Leiden: H. E. Stenfert Kroese. 1955. Pp. xi, 248. *f* 14.25).

This study dealing with the human factor in business enterprise and its relation to the problems of business economics constitutes Volume XIX in a series of monographs that have dealt with such subjects as budget-making and budget control, growth in size and executive leadership, accounting, marketing, advertising and dividend policies.

Dr. de Jong notes at the outset that descriptive material relative to the human factor forms a bulky constituent of several disciplines, including business sociology, business psychology, and business economics. In the narrow meaning of the term the human factor "is neither necessary nor desirable as part of a theory of business economics." But if the human factor is understood in the broad sense as being present wherever in business there occurs employment of manpower, then among the variety of aspects of the phenomena there are economic aspects including not only the questions asked by the facts but the hypotheses put by the observer, the various models, functional interrelationships, measurements, parameters and verification which constitute a significant element in the theory of the business firm. Intensive studies, including the highly touted case studies so prolific in American literature on human relations, become according to the philosophy of Rickert and Windelband essentially merely history. Only the study of human relations *in extenso* deserves the badge of being theoretical or scientific.

Accordingly de Jong selects as guides German and Dutch authors. "Indeed," he writes, "to speak of a theory of business economics in the United States (such as has developed in Germany recently and in our country as a scientific part of economic theory) is out of the question" (p. 15). There are thus no references in his volume to any of the enterprise-theorists such as Chamberlin, Dean, Papandreou, or Cady nor to labor theorists such as Reynolds, Lester or Daugherty. Nor is the vast literature on human relations used inductively or even sampled for illustrative or quantification purposes. It is dismissed as "subjective," "approaching problems from totally different

viewpoints . . . not brought under one heading" and "lacking synthesis to give guidance to executive policy" (p. 33).

On the contrary, de Jong's treatment is entirely deductive. His primary, central principle (as stated in English by the author in his summary) "derived from the foundations of society structure in the Western countries and introduced in business economics literature by Professor J. L. Mey, has reference to the economic independent character of the business institution" (p. 216).

From this premise he deduces not only the primacy of business economics in the field of human relations but its "normative function" (p. 23), in the event that the disciplines of business psychology or business sociology come up with contrary answers.

This central principle likewise predetermines and delimits the categories of the human factor to which de Jong applies his tool-kit of theoretical business economics (Ch. 3-6). These categories are: (1) the reward of labor and employment-time; (2) the kind of work; (3) cooperation in business; (4) management and policy in business; and (5) partnership in business. "These categories evolve from the satisfaction of wants (1, 5), the physical state of the labourer (2), 'man as a social creature' (3) and 'self-respect of man' (4)....

"It is obvious that all the categories of the human factor in business can be reduced to the fact that manpower is connected with the person of the labourer" (p. 218).

To limit "business" to production, to equate the "human factor" to labor and management within the enterprise, to leave out the influencing of business, price-, quantity-, and factor-reward decisions by other laborers, competitors, customers, governmental policy-makers and the public does, to be sure, simplify the analysis of "the human factor." It also leads to such interesting observations as, to quote at random, that "it is necessary to give the labourers a questionnaire, in order to know what they think about their life and work in business" (p. 218), or that: "The labour-willingness depends on the relation of the labourer to the object of work [kind of work], the morale of labour-collectivity and the reward-function, *i.e.*, the relation between labour-output and labour-reward. With regard to this relation we disregarded the different wage-systems, in practice in use" (p. 218).

Equally interesting, in these days of the split property atom and the exercise of managerial powers by directors owning merely token or qualifying shares, is the observation that "management cannot delegate the right of say [to take part in managerial decision-making] to labourers" because "top-management is accountable to the owners of business [share-holders]. The nature of authority lies in the legal right of ownership of share-holders" (p. 221).

Similarly de Jong's chapter on profit-sharing concludes: "with regard to the economic possibility of profit sharing, we can say that payment to labourers from that part of profit which has a real function [uncertainty-bearing] is irrational. As far as profit does not have a real function in business [quasi-rents? monopoly?], payments to labourers is rational (p. 223) . . . instead of paying profits to labourers, profits ought to be lowered" (p. 224).

The task of securing adequate profit data, sifting out "earned" from "unearned" profits and promptly achieving lowered prices differentially by firms, each with its varying product-mix, would seem formidable.

The preceding verbatim excerpts from the summary (pp. 216-27), printed in English by the author for the convenience of those who do not read the Dutch language provide a representative sample of the scholastic flavor of de Jong's monograph. They do not convey, of course, the taxonomic hair-splitting and linguistic finesse of the original.

THEODORE J. KREPS

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Industrial Organization; Government and Business; Industry Studies

United States v. *United Shoe Machinery Corporation.* By CARL KAYSEN. (Cambridge: Harvard University Press. 1956. Pp. xi, 404. $6.50.)

Twenty years ago economists were disturbed by the gap between economic and legal standards for determining monopoly. The courts, viewing *free* competition as the antithesis of monopoly, were concerned about interference with the freedom of rivals to compete and looked to predatory conduct as evidence of intent to monopolize. Economists, regarding *pure* competition as the antithesis of monopoly, were more concerned with power over the market as a monopoly criterion. Court decisions, beginning with the Aluminum case in 1945 and including among others the second American Tobacco case, the United Shoe Machinery case, and the more recent Cellophane case, have narrowed the gap. Economists are likely to regard this as progress in the administration of the antitrust laws, but it has not greatly simplified the problem of determining violations of the Sherman Act.

Carl Kaysen, as an economic consultant to Judge Wyzanski, has had a remarkable opportunity to utilize economic analysis in an antitrust proceeding and to assess its significance. This book is a result of his experience. He divides his discussion of the United Shoe Machinery Corporation case into four major parts: the shoe machinery market; the suppliers' market; remedies; and the outcome of the case: some lessons from it.

In Part I, after analyzing United's position in the market and how it got it, Kaysen concludes that United's market share is large enough to give it a substantial degree of monopoly power and that its power was deliberately achieved, not thrust upon it. Its original merger, its subsequent acquisitions, its patent structure, its full-line manufacturing and merchandising, and above all its leasing practices, none of which were predatory, were neverthless designed to give it a dominant place in the industry and to keep competition at a minimum. "[T]he conclusion that United feared a competitor above all things is one which jumps out from the evidence" (p. 114). While the evidence on the economies of scale is scarce, Kaysen rejects the hypothesis that these can explain or justify United's market position. Nor does he find that United has justified its monopoly by its economic performance. It was less guilty of coercive practices than the government alleged, but its market

position gave it a distinct advantage in all of its bargaining activities. Its profits, though reasonable, varied greatly on different machines, and it used price discrimination as a weapon in either meeting competition or exploiting monopoly. Its "economic performance . . . in respect to price-cost relations is poor" (p. 146). Kaysen scores United relatively high on "research and progressiveness" but not high enough "to outweigh deficiencies in other respects" (p. 207).

The picture is not greatly different in the suppliers' market (Part II), in many areas of which United's power is substantial. Its use of this power "has not been such as to 'justify' it, either in terms of a 'trusteeship' (good-monopoly) theory of the Sherman Act or . . . of an economic argument of the benefits of scale" (p. 266).

In Part III Kaysen outlines the remedies he believes essential to restore competition. He rejects dissolution in the manufacturing of shoe machinery largely on grounds of practicality, but he would require United to divest itself of certain subsidiary branches and lines and would enjoin it from acting as a distributor of supplies that it did not make. But to restore competition he would rely largely on United's being forced to abandon the practice of leasing machines and to sell all machines outright. The government won its suit and the district court's remedies paralleled Kaysen's proposals, although they did not go so far. Specifically the court did not order the abandonment of leasing but merely required United to offer its users the option of leasing or buying its machines subject to terms arrived at by procedure outlined by the court. On the whole Kaysen is optimistic that the decree will ultimately restore competition in the shoe machinery business, and he notes faint signs of its doing so. "All in all, there appear to have been stirrings in the industry indicative of the growth of competition, most of which began after the Government won its case. No doubt there were also other factors contributing to these developments, but the prospect of a relaxation of United's grip on its shoe manufacturing customers was certainly one important one" (pp. 332-33).

Kaysen has produced an important industry study written with clarity and reflecting meticulous, penetrating, and objective analysis. It is relatively free of professional jargon, yet it has lost neither depth of analysis nor tightness of exposition. The importance of the book does not rest wholly on its qualities of economic analysis. More interesting are Kaysen's reflections on the antitrust laws and the general significance of economic analysis in their enforcement. The Sherman Act prohibits monopolizing and trying to monopolize. Monopoly is an economic concept, and who is better equipped to discover it than an economist? Kaysen outlines the following steps in determining monopoly: (1) delimit the market; (2) analyze the market structure; and (3) analyze certain aspects of market performance. Market performance relative to an economic judgment on monopoly should be described in terms of "price-cost relationships, the extent and nature of non-price competition, and the efficiency of resource use as indicated by the scale and utilization of facilities and the location of production" (p. 17).

Having found market power, to determine liability under the Sherman Act Kaysen would look to the policies of a firm. In doing so he would give little

attention to specific intent but would examine business policies primarily as causal factors in the firm's dominant market position. All of this is good logic, and at the same time it is apt to strike most economists as reflecting common, if not uncommon, sense. It also reflects the recent drift of court decisions. But it makes the task of determining monopoly seem easier than it is and harder than it need be.

It is easier to detect monopoly power than to measure it or determine the limits of the market in which it can be exploited. Economists do not know enough about cross-elasticity or have access to the essential data for determining the power of substitutes to protect consumers from monopolistic exploitation and an uneconomical allocation of resources. The Cellophane case, in which the Supreme Court set itself the task of determining the relevant market, reflects these difficulties. The Court concluded that cellophane was not a differentiated product with a market of its own but a flexible wrapping paper meeting the competition of glassine, waxed paper, polyethylene, and a score of similar materials designed to display and protect merchandise, and that therefore Du Pont had no monopoly in cellophane. It reached this conclusion although Du Pont was one of two domestic producers of cellophane, had prevented competition in it through patent exchange agreements and other commercial strategy, and had established cost-price relationships resulting in an average annual return over a quarter of a century of 34.4 per cent on operating investment. Unless they are to rely upon superficial observation, economists and courts must accept a narrow conception of the market (cellophane, not flexible wrapping paper in this instance), look to business practices whether predatory or noncoercive (as would Kaysen and Judge Wyzanski), and as would Kaysen examine those aspects of market performance, especially cost-price relationships, of particular significance to the discovery of monopoly. The chief shortcomings in Kaysen's standards, as I see it, are his failure to recognize the difficulty of determining market limits in any precise manner and the importance he attaches to determining them. This may be a matter of opinion rather than a fact, and that I hold it does not lessen my conviction that Kaysen's book is a valuable addition to the literature of industry studies.

George W. Stocking

Vanderbilt University

Big Business and the Policy of Competition. By Corwin D. Edwards. (Cleveland: Western Reserve University Press. 1956. Pp. x, 180. $3.50.)

These four lectures, presented at Western Reserve University and Case Institute, contain Edwards' first policy pronouncement since his "release from the inhibitions that surround statements by public officials." The conclusion that "there is serious difficulty in maintaining the vigor of competition in an environment of big business," should come as no surprise to those familiar with Edwards' work.

He discusses the issues and standards in the appraisal of big business, the case against big business, the case for big business, and the direction of public policy. He points out that we need "criteria by which the competitiveness of a particular enterprise can be determined in a particular setting"

rather than "opinions that big business, or any other class of business, is generally good or generally bad" (p. 21). He observes that "the case against big business rests largely upon detailed charges by public officials, supported by proof" whereas "the case for big business is neither equally detailed nor equally authoritative" (p. 69). He finds that even if the power of monopolies and oligopolies were destroyed by antitrust action, the sheer bigness of some conglomerate giants and the Zaibatsu-like power of some interest groups would still confront us with economic power which is capable of abuse and is in fact abused (p. 54). He emphasizes that interindustry competition and corporate diversification are not always an effective check on market power: "Where diversified companies are established in various industries, substitutes are sometimes under a single corporate control. Agreements between producers of the substitutes sometimes prevent effective competition. Agreements to allocate fields sometimes prevent or limit diversification in the direction in which competition is needed" (p. 97). He doubts that the long-run price policies of big business are convincing proof of good performance: "A record of price reductions suggests but does not prove the existence of price competition and suggests but does not prove that the economic performance of the concern has been good" (p. 83).

These brief glimpses should suffice to indicate the author's approach. They lead him to a variety of policy conclusions most of which were explored in greater detail in his *Maintaining Competition*. Noteworthy, however, is Edwards' admonition that "we should cease to pay exclusive attention to monopoly power, as distinguished from types of power . . . that are traceable to bigness instead of monopoly. We should cease to smuggle other types of power into our thinking by calling them monopoly power. We should accept the fact that power may be derived from oligopolistic or monopolistic place in a significant market, from disparity in size between competing corporations or between buyer and seller, from structural forms such as vertical integration or diversification, and from aggregate bigness of a corporation's activities as a whole" (p. 132).

Perhaps the most original and valuable part of this little book is the appendix. There the inquiry becomes quantitative: How often does monopoly appear? How often does oligopolistic concentration create an anticompetitive exercise of oligopoly power? How frequently do the few big companies have power that is primarily nonfunctional? How often do they use it abusively to collaborate among themselves and to coerce smaller companies? Obviously the case against big business depends largely on the answers to these questions.

Edwards does not leave the answers to mere opinion. Instead he searches the antitrust record for the character and frequency of violations by the very largest big business concerns. The companies selected for study are the 50 largest industrial concerns as listed by A. D. H. Kaplan for the year 1948. For each of these companies (including some, but not all, subsidiaries) Edwards develops a list showing the cases instituted by the Department of Justice in which the company (1) was found guilty after trial (and appeal, if any), or (2) pleaded *nolo contendere* and was fined, or (3) accepted a consent decree. Edwards develops a similar list for Federal Trade Com-

mission cases where the respondent was found guilty and where the finding was not set aside on appeal. For a variety of reasons, Edwards feels that his compilations understate the extent of big business violations.

The major generalizations based on this quantitative analysis are that (1) the integrated oil companies have been deeply and continuously involved in violations of the Sherman Act. Of the 10 such companies which are among the 50 largest industrial concerns, 8 have been fined or enjoined for violations of the law and another is defendant in a pending case. Nine cases have been won by the government, and 2 more are pending. (2) The 2 largest electrical manufacturers have also built up an impressive record, with General Electric losing 12 Sherman Act cases and Westinghouse 5. (3) The largest chemical company, Du Pont, has lost 9 Sherman Act cases since 1913, and is now a defendant in a pending case. (4) The largest automobile assembler, General Motors, has a record of 6 violations, and is a defendant in a pending case. In all, 35 of the 50 largest industrial companies have lost one or more cases in proceedings instituted by the Department of Justice. Six others are defendants in pending cases, and 9 have not been involved in any such case (pp. 54-63).

A similar pattern emerges from the analysis of cases before the Federal Trade Commission. Of the 41 such cases, 28 involve a Sherman Act-type violation, 21 involve conspiracy, 3 resale price maintenance and 4 some kind of monopolistic exercise of power. This brings the grand total to 102 decided cases and 12 pending cases. Of the 50 companies in the survey only Woolworth and Atlantic Refining have spotless records (pp. 63-67).

On the basis of this analysis Edwards concludes that "violation of the central prohibitions of the anti-trust laws is too common among big companies to be disregarded" or treated as an unimportant aspect of their market behavior. "Abuse of power for monopolistic purposes is a significant and recurrent pattern of big business" (p. 68).

Edwards presents his case clearly, interestingly, and persuasively, but except for the appendix offers little that is new or startling. Especially regrettable is his failure to treat the problem of the regulated industries (trucking, airlines, television, etc.) where there is increasing evidence that "independent" commissions have unduly curtailed, if not stifled, competition. Here is an important segment of the economy where economic concentration may be fostered by governmental action, where "bigness" may be correlated not with private conspiracies, or economies of scale, or superior performance, but simply with the conceptual and operational failure of "administrative expertise." Here is an area where greater competition (especially freer entry) is not only feasible, but where it can be achieved without resort to such drastic remedies as dissolution, divorcement, and divestiture.

WALTER ADAMS

Michigan State University

Business Practices, Trade Position, and Competition. By OSWALD KNAUTH. (New York: Columbia University Press. 1956. Pp. 181. $3.00.)

Even the long title of this small book understates its scope. At the heart of the book are six chapters on "trade position," of industry, of patents, of

financial institutions, of labor unions, and of agriculture, together with a summary of trade position. Two general chapters on business practices precede these, and one on the tool of accountancy. The last chapters concern competition and innovation, the roles of marketing, of investment, and of government, and "the theory of business practice."

Inevitably the comments are brief; often they are discursive. One is stimulated, however, by the breadth of Dr. Knauth's interests. And the numerous concrete instances he cites are, like the issues they illustrate, important and up-to-date. Moreover, he is notably fair-minded. This book, therefore, might serve as the launching point for informal discussion of economic problems by undergraduate or layman groups.

The author has attempted to unify the work by building around the concept of "trade position." Briefly, Knauth's thesis is that specialization and heavy overhead costs require an uninterrupted flow of production. This depends upon a complex and dynamic marketing system, and requires, for survival, some "trade position" as a "refuge from the vagaries of the market place." Advantages of location, exclusive position, custom, reputation, established organization, resource ownership, fewness of competitors, and bigness are the categories he gives for the many varieties of trade positions found in industry. Though they rest on more or less exclusive possession of certain assets, they ought not to be condemned as "monopolistic." In the first place, they are inevitable as means of stabilizing business in order to make long-term planning possible. Besides, they are limited by indirect competition from substitutes near and distant, and most of all by innovation and dynamic change. Yet antitrust policy is wrongly based on a static, classical model.

About this central theme the specialist will have many doubts. The most fundamental of these is the disconcertingly amorphous nature of the trade position concept, especially in Chapter 9, "A Summary of Trade Position." There are many more specific questions, too, although one cannot be certain whether they are inherent in the analysis or merely result from imprecise or excessively brief expression. For example, it is not clear why business requires insulation from fluctuations of competitive markets, whereas it is able to adjust to unceasing disruptions from innovations. Again, to say that its "main concern is to distribute as fast as the production line produces" seems to cast mass distribution management in the role of a Sorcerer's Apprentice by implying too rigid and uncontrollable a production process. As a third example, Knauth's observation that "judgment is required to determine the limits of control of a trade position" since abuse of trade position "leads to its termination" seems to raise more questions than it settles. On the whole, the author could have made a better book by narrowing the range of topics and developing his central thesis more intensively.

Although I feel that the classical economics which Knauth criticizes is something of a straw man, there is no denying the inadequacy of conventional economic models, especially in relation to dynamic situations and applied to retail marketing settings. On these matters, the opinions, intuitions, and even the questions raised by a man of Knauth's business ex-

perience (as former vice-president of Macy's and president of the Associated Dry Goods Corporation) are worth a good deal.

HOWARD H. HINES

Iowa State College

The Economics of Soviet Steel. By M. GARDNER CLARK. (Cambridge: Harvard University Press. 1956. Pp. xiv, 400. $7.50.)

Wassily Leontief in his foreword characterizes the subject of this book as the grim but fascinating experiment, conducted on an unprecedented scale, of compressing centuries of economic development into two decades, of transforming a backward country into one of the two great industrial world powers.

To appreciate the Russian achievement one must remember that their steel output had grown from 4.3 million metric tons in 1928 to 22 million in 1940, only to be reduced to 12 million in 1945 after the Germans had destroyed the plants in the Ukraine. Steel output for 1956 was 49 million MT against 45 MMT in 1955. Coal output in 1956 was 430 MMT against 390 MMT in 1955 and only 150 in 1945 and 35 in 1928. The present five-year plan provides for 593 MMT of coal and 68.3 MMT of steel in 1960. Therefore in 1960 coal production would exceed U.S. production and steel production would equal U.S. peak output during the second world war.

Comparing 1956 with 1929, Russian steel output increased more than 10 times while U.S. production only increased from 71.4 to 115 million MT, or 1.8 times. Electric power output increased 6 times in the U.S. against 31 times in the USSR; capacity of hydroelectric stations under construction in the USSR is almost three times the total in operation in 1954.

With the achievements of and plans for Russia's industrialization either watched with apprehension or scepticism, a careful analysis of the growth, present situation and prospects of the steel industry—"the central and most vital sector of any modern industrial economy"—is welcome indeed.

The author himself did not go to Russia and therefore the report of a visit of Western European steel executives to USSR steel centers provides a valuable supplement.[1] The book is based on available Russian publications and the author reveals a competent familiarity with the technology of the industry in this country and Western Europe. If in the introduction he apologizes for "what may seem to be an excessive preoccupation with the technical problems," he should be assured that it is just this emphasis that makes the book valuable.

Cost of production, productivity, location and chances for future expansion of iron and steel capacity are largely determined by the availability of scrap, of metallurgical-type coals, of iron ore and limestone deposits, on the productivity of labor and technological progress. While there is, as yet, no evidence of original contributions to steel technology, widespread adoption of U.S. or Western European innovations appears to occur more promptly in the USSR than in the countries where they originated.

As a matter of fact, the author states (p. 247) without any qualification that the productivity of Soviet blast furnaces and open hearths is higher

[1] Iron and Steel Institute, *The Russian Iron and Steel Industry* (London, 1956).

than our own, even if the productivity per worker is less. While he describes the precise measures ("coefficient of the utilization of useful capacity") developed in Russia, he does not give comparable U.S. data to support his claims. It is not clear from this definition to what extent high productivity of blast furnaces or steel furnaces is the result of greater efficiency of the equipment as compared to ours or simply of more constant full use of capacity, *i.e.*, *less* downtime for repairs and due to the periods of slack demand as we experience it because of seasonal or cyclical factors in a free rather than a controlled economy. The Russian data indicate that the national average blast furnace productivity increased by 45 per cent between 1946 and 1954, while open hearth productivity gained by 61 per cent. Most of this improvement is held to have been due to new techniques, such as automatic controls, the use of oxygen and hot top pressure. Incentives were provided to inventors and innovators by granting Stalin Prizes (300,000 roubles?), of which in 1951 alone 114 went to steel operators.

That even such incentives may be frustrated, however, is reported: The engineer in the blast furnace shop at Magnitogorsk complained in a letter to *Pravda* that they had wanted to convert one of their blast furnaces to hot top pressure (as pioneered in this country by A. D. Little and Republic Steel), but that the central authorities in Moscow at the Ministry of Iron and Steel would not permit them to convert because they were afraid to lose the 25 days of production which the necessary changes would involve. The Magnitogorsk officials did not dare on their own initiative to risk falling even temporarily below the quota set for them. (Incidentally, it has often been pointed out that our steel industry finds it difficult to try out new techniques, because in boom times all available capacity is needed to satisfy customers, while in a recession although furnaces would be available for experiments the appropriations are not, since the company works at a loss.)

Labor productivity, as compared to efficiency of equipment, is held to be quite low as compared to ours (and this was blamed by Sir Robert Shone, Executive Member of the British Iron & Steel Board, discussing his visit to Russian steel plants with the reviewer, on poor foremanship).

There is evidently no lack of markets. Red China alone is a bottomless pit for the consumption of USSR steel; and domestically, heavy industry, armaments, agriculture and consumers are unlikely as a whole to be satisfied in any foreseeable future. With markets no problem, the future expansion of Russian steel capacity is only restricted by the deteriorating quality of coking coal and iron ore. Remaining reserves of metallurgical-type coal are too friable to support the charge in large blast furnaces; also the sulphur content is rising. While in the reviewer's opinion a lack of coking coal might be overcome by a new process of direct reduction of iron ore through hydrogen, there is no solution for lower-grade iron ores but the installation of costly beneficiation plants. The author concludes that the current rate of capacity expansion must require a more than proportionally increasing investment of capital, a factor which might make Russia eager to reduce its armament burden. The

reviewer would like to add that in the next decade the entrants into the labor force, because of the low birthrate in Russia during the war, will fail to even replace retirements.

ROBERT M. WEIDENHAMMER
University of Pittsburgh

Industrielle Strukturwandlungen im Sowjetisch Besetzten Gebiet Deutschlands. By BODO BÖTTCHER. Institute of Eastern Europe, Free University of Berlin Econ. Stud. IV. (Berlin: Duncker & Humblot. 1956. Pp. vii, 134. DM 16.)

Although cut into two independent economic units with widely diverging political orientation, Germany continues to show enormous economic vitality. The Federal Republic (West) and the Democratic Republic (East) have undergone vast changes in their industrial structure in order to make up for the industries lost through the partition of the country, and to integrate themselves into the separate western and eastern markets. Undoubtedly East Germany has had much more difficult problems of adjustment. The Democratic Republic is only half the size of West Germany, is far less well endowed, and has an industry which is less diversified. Furthermore, East Germany has witnessed the dismantlement of a large part of its industrial machinery and has had to pay *in natura,* from its current production, large reparations to the Soviet Union. In aiming to modify its structure according to the Soviet model of industrialization, and in adjusting itself to the demand of the Soviet-bloc market, East Germany has made an enormous effort for the development of its "heavy industrial base" and particularly of its metallurgical branch.

Bodo Böttcher concentrates in his study on the changes undergone by a few key branches of industry and their subbranches in East Germany (which he continues to call the Soviet Occupation Zone). His object is to determine the magnitude and direction of these changes and to contrast them to those which occurred in the West. He therefore devotes himself to comparing the relative positions occupied by the two parts of the country in prewar and postwar German employment and output. The branches chosen are coal, ferrous metallurgy, chemicals, auto industry, optical industry, and electrical equipment. A subsequent study now in preparation will examine other important branches such as machinery and textiles. The period under survey is that of 1949/50 to 1955, *i.e.,* roughly the first planned quinquennium of East Germany.

In order to establish both the development and the changes undergone in the branches considered, the study uses two main indicators: employment and output in physical terms. The already familiar arguments concerning the deficiencies of the official Communist figures on the gross value of output are restated. However, the author does not indicate why he has not at least explored the implications of the official data, and why he has not attempted to gather some information on changes in capacity of the industries considered.

It clearly appears from the statistical tables that both "Germanies" are,

so to speak, running equally fast in some branches, and that in other branches their relative positions have changed. The changes have been mainly a consequence of different resource endowments. Thus for bituminous coal, well-endowed West Germany has progressed relatively to the East; in sub-bituminous coal, better-endowed East Germany has increased output more rapidly. While in the chemical and car industries the East has developed at a slower pace than the West, in steel production the East has increased its share from 7 per cent of the 1936 output to 10 per cent of the 1955 output. In the optical industry both sections of Germany have maintained their prewar relative importance. (It should be noted that the progress achieved in steel output by East Germany is now seriously jeopardized by the disruptions occurring in the "eastern world market" and by the drop in the Polish supplies of coke and coal).

Böttcher's statistical study is meticulous and highly detailed. However, the framework chosen is narrow and the mechanical repetition of the same types of tabulation becomes tiresome. There is too much restatement of tabular material in textual form and furthermore the results obtained are in no way integrated in a more general view of the whole German economy for the period considered.

The limitation of the analytical discussion leaves one wondering what is actually the importance of the respective branches in the total product and in relation to the other sectors of the economy. A broader discussion of precisely these problems is to be found in a study entitled "Structural Adaptation in Eastern and Western Germany," published after Böttcher's book by the United Nations in the *Economic Bulletin for Europe,* Vol. 8, No. 3 of November 1956. Undoubtedly both studies gain when read in conjunction.

NICOLAS SPULBER

Indiana University

The Combined Food Board—A Study in Wartime International Planning. By ERIC ROLL. (Stanford: Stanford University Press. 1956. Pp. xiii, 385. $7.50.)

This is the eleventh volume in the Stanford Food Research Institute's series on food and agricultural problems in the second world war. From the author's viewpoint as initially a member of the original British Food Mission to the United States, and later an official of the Combined Food Board, the book provides both the underlying historical record and a commentary on problems in securing effective international cooperation in planning and directing the production and distribution of foodstuffs under wartime conditions. It is a useful addition to the substantial body of documentation of resource administration in wartime that can be studied profitably as public administration case material.

The first third of the book describes the background of food policy and organization in the United Kingdom and the United States and traces the origin of the Combined Food Board from the outbreak of war through 1942. The second part covers the Board's operations in 1943 and 1944. This section includes a description of the structure, organization, and administrative meth-

ods of the Board in allocating foodstuffs in short supply. The last group of chapters deals with the final eighteen months of the Board's history, culminating in the spring of 1946 with its efforts to develop long-range plans for food and agriculture in a time of crisis.

As an experiment in international cooperation, the record is an important one to report and appraise. The problems faced by the Board were difficult and varied. The United Kingdom's vulnerable position—with prewar imports of 84 per cent of its requirements for sugar and fats and oils, 88 per cent of its wheat requirements, 75 per cent of its cheese requirements, and over half of its meat—contrasted sharply with the comfortable U.S. situation. A second contrast was provided by the extent of government control at wholesale chokepoints. When the British Food Mission began its operations in Washington, the Ministry of Food was directly responsible for the importation of virtually all food and animal feedstuffs into the United Kingdom. There were only negligible imports on private account and these were licensed. The creation and operation of administrative machinery for international control of production and distribution had to be undertaken in this disparate environment. One result was that considerably greater progress was made in identifying problems and procedures of policy formulation than in assuring the implementation of Board decisions.

It is difficult to accept in its entirety Roll's appraisal of the Board's performance. The Board's experience did provide, as he observes, an exercise in international cooperation that contributed to the handling of administrative issues in later intergovernment organizations, such as the Office for European Economic Cooperation and the North Atlantic Treaty Organization. And as a matter of substance the Board's work helped to reduce—and in some instances to eliminate—competitive procurement in international markets during the second world war. On the other hand, Roll describes with enthusiastic approval the proliferation of subcommittees that appears to be the inevitable accompaniment of international activities, the compilation of statistics where little data previously existed, the accumulation of documents under the direction of a professional secretariat. These may be valuable or neutral activities, but he neglects to report on the critical issue of performance. One remembers the dismal early experience of the War Production Board before the institution of the controllership function and the establishment of accountability and reporting on the implementation of policy decisions. Those were days in which many and great decisions were made—too often in terms that defied execution, and always without a record of what actually was done to translate policy into action. It is not surprising to find in the history of the Combined Food Board the same eagerness to tackle giant problems and formulate policies for dealing with them, accompanied by the same reluctance to come to grips with the unpleasant and unromantic chores of getting things done. But it is disappointing to find Roll as uncritical as he appears in this volume with respect to the failure to establish routine procedures for measuring and accounting for performance.

MELVIN ANSHEN

Carnegie Institute of Technology

Land Economics; Agricultural Economics; Economic Geography; Housing

Agriculture and Industry Relative Income. By J. R. BELLERBY and ASSOCIATES. (London: Macmillan & Co. Ltd. New York: St. Martin's Press. 1956. Pp. xii, 369. $6.75.)

In some ways this is a strange book. The discussion ranges from the development of the concept of a supply price for farm enterprise to a description of the potato famine of 1845-46 in Ireland. In other ways it is an exciting and an important book. If the Bellerby concepts are relevant and his estimates are reliable, then we have useful measures for a whole series of countries (including the United States) of the degree to which agricultural workers are at a disadvantage as to income relative to nonagricultural workers. We also have a persuasively reasoned explanation for persistent income disparities between agricultural and nonagricultural workers.

To facilitate the comparison between farm and nonfarm incomes, Bellerby develops a concept of *incentive income,* which he defines as "the return to human effort and enterprise"; the concept thus excludes all return to property. The major empirical work of the study is concerned with estimating farm-worker and nonfarm-worker incentive incomes in the following countries: United Kingdom, Canada, Ireland, United States, Netherlands, France, Sweden, Norway, Finland, Germany, India, Burma, China, Japan, Chile, Peru, Mexico, Philippines, Australia, and New Zealand (only in the case of the first six countries of this list, however, are the estimates given in reasonable detail).

From these estimates, Bellerby derives what he calls *the incentive income ratio,* the ratio of farm-worker to nonfarm-worker incentive income. And much of the book is devoted to the presentation and discussion of this ratio. Bellerby finds, for example, that the incentive income ratio runs as high as 107 for Australia, and persistently remains close to 100 for that country. The same ratio has fallen as low as 5 and has rarely risen above 60 in Canada. And the ratio has fallen as low as 28 and rarely has exceeded 50 in the United States. In short, except for a few countries such as Australia and New Zealand, the modal position for the incentive income ratio is around 60.

Bellerby makes the concept, supply price of enterprise, an integral part of the analysis. When applied to the individual farmer the concept, supply price, is used to mean "the price, in terms of incentive income, for which he is willing to play his part in supplying a given net product." And the concept of supply price of farm enterprise may be expressed conveniently, Bellerby argues, in terms of the incentive income ratio. If the supply price of the representative farmer is equal to the incentive income ratio, the ratio will tend to persist. Where the ratio exceeds the supply price of the representative farmer, workers in agriculture will increase, production will increase, and the ratio will be lowered. And where the supply price of the representative farmer exceeds the ratio, workers will leave agriculture (or the rate of out-migration will be speeded up), production will be decreased and the ratio will rise.

Since the incentive income ratio is low, and persistently so, in many countries, it must be the case that the supply price of the representative worker in those countries is also low. And this Bellerby believes to be the case. Hence, he inquires into the causes of a persistent, relatively low supply price of enterprise in agriculture, an inquiry which is pulled together in a penetrating discussion in Chapter 16, Summary of Evidence. Every economist, agricultural or otherwise, would benefit from reading this chapter. And it should be required reading for that slowly diminishing group of economists who believe that the economy either conforms to, or should conform to, a perfectly (purely) competitive model. The obstacles to mobility for farm people are made beautifully clear in this chapter.

The empirical results presented by Bellerby and his associates in this volume in the form of incentive income ratios are going to be debated for a long time to come. This will be the case because important political and policy implications flow from these results. These results support the view, generally acclaimed by politicians and disclaimed by economists, that the farmer belongs to a group chronically at a disadvantage—that the farmer needs the help of government to realize a fair and equitable income. Thus protagonists of government aid to farmers are going to use the Bellerby arguments and estimates to support their case, and critics of government aid to farmers are going to deprecate the Bellerby conclusions and look for errors of fact or logic among them.

Several points can be made in the way of evaluation. First, the income concepts formulated and used by Bellerby are clear, unmuddied, and consistent with the purposes of the analysis. Secondly, the sources and references given for each set of income estimates inspire confidence in the quality of the work. The estimating work of Bellerby and his associates is no off-the-cuff job. Third, the theory and the empirical results are woven together in an impressive way.

Perhaps this reviewer is too easily persuaded by the arguments and estimates presented; but it is hard not to be persuaded when arguments and estimates support one's own hypotheses as fully as these do mine.

WILLARD W. COCHRANE

University of Minnesota

Social Responsibility in Farm Leadership. By WALTER W. WILCOX. (New York: Harper & Bros. 1956. Pp. xi, 194. $3.00.)

In the foreword to this book, Charles P. Taft explains that it is one of several commissioned by the Federal Council of the Churches of Christ in America to help ". . . clarify in relation to our own institutions the basic ethical affirmations which we support."

The introductory chapter on "Ethics and Economic Life" suggests that the book is concerned with possible conflicts between ethically and economically motivated behavior. It asserts that the most important ethical norm is equity, defined as "the desire that each one deserve what he gets and get what he deserves . . . ," but states that ". . . honesty, truth, and productivity also have left an indelible imprint." Farm people possess additional ethical

values including neighborliness, a sense of stewardship of the resources they control, and kindness to farm animals.

The other chapters in Part I (The Setting) contain a description of the ways in which farming is different from other occupations, an enumeration of the alleged ills in American agriculture, and a sympathetic account of the many governmental measures adopted to assist farmers. The author is disturbed by present farm-tenancy laws, by the low incomes of some farmers, by the problems of young men who want to buy farms but have not enough money to do so, and by the difficulties some farmers experience in trying to transfer their farms to their sons.

A few words are devoted to the impact of price-support and surplus-disposal programs on international relations, although the author finds nothing disturbing here. In fact, these programs "actually may have benefited producers in other countries" (p. 37). The author also concludes that price-support measures (he always calls them "price-stabilization measures") have probably lowered food costs to consumers within the United States.

Part I contains occasional references to such concepts as equity, highest ethical standards, and Christian stewardship, but the ethical criteria of the first chapter are not applied to the practical problems of agricultural policy except for the underlying theme that those who farm or wish to farm are entitled to support from the public treasury.

The second half of the book (pp. 91-175) is entitled "Farm Leadership in Action." It contains descriptions of the major farm organizations, a summary of their public statements on policy matters, and an account of the functions of local, county and state leaders. There is also an exhaustive classification of other "farm leaders" including legislators, administrators, and officers of the various farm trade associations.

The author presents most positions with complete impartiality but expresses some concern because not all farm leaders are interested in the poor in agriculture. He appears not to be much concerned because farm leaders place farm welfare above national welfare, although he renders lip service to the idea that they must be "aware of the interests and goals shared by others."

WILLIAM O. JONES

Stanford University

Agriculture in an Industrial Economy: The Agrarian Crisis. By TROY J. CAULEY. (New York: Bookman Associates. 1956. Pp. 191. $4.00.)

Cauley argues that our economic system is not in any significant sense price- or market-controlled. Prices do not allocate resources, he insists, but even if they did, the allocation would not conform to welfare considerations. Orthodox economics is portrayed as a rigmarole of religiosity which must be abandoned sooner or later, and the sooner the better. He proposes to ease any withdrawal symptoms occasioned by the apostasy with a stiff injection of a new miracle drug, named "the principle of comparative contribution to a functionally adequate distribution of purchasing power." "Functionally adequate distribution," as he elsewhere abbreviates his phrase, or FAD, a still

further abbreviation, is based upon the Keynesian consumption schedule. Cauley asserts that leading agricultural economists have entirely ignored Keynesian theory, an oversight which he deems the more grievous in the light of his discovery that FAD will solve the farm problem.

Why is FAD heralded as a solution for the farm problem in particular? Cauley reasons that higher incomes for lower-income groups will result in their consumption of more superior foods, and these are foods for which demand elasticity is higher. The orthodox presumption that farmers would respond to this change in the consumption pattern by producing more superior foods has been refuted by Cauley in a separate chapter he relies on the government to direct the reallocation.

The fact that the symptoms of the farm problem have not subsided in the presence of modified income distribution cannot be offered in criticism of Cauley's thesis, by reason not only of a failure to direct farmers to produce more superior foods, but also of a special property of FAD. If the patient is not well, this simply indicates that he has not received enough of the drug (he is to take this remedy until he stops sneezing or breathing, whichever occurs first). After belaboring orthodoxy for the circularity of the marginal productivity theory, Cauley proceeds to argue that the solution to the farm problem is functionally adequate distribution, meaning by "functionally adequate" that amount of redistribution which would solve the farm problem. (Since the nonagricultural economy has been operating at "capacity," I can interpret his definition of functional adequacy in no other way.)

Cauley also extends his criterion of functional adequacy into related problem areas. Thus, "free trade of the sort . . . upheld by classical and neoclassical economists is not desirable . ... for the basic reason that it does not yield a functionally adequate distribution of income among the peoples of the world"; "incomes [of tenant farmers] are reduced by the amount of the rentals which they pay to landlords; and usually this is bad from the standpoint of its effect upon the functional adequacy of the distribution of income"; and "Less use of property taxes and sales tax and greater use of progressive net income taxes are essential to the achievement of a functionally adequate purchasing power on the part of farmers."

It would be unfair to Cauley to leave the impression that so nebulous a nostrum as FAD comprises the whole of his remedial paraphernalia. He presents this as but a particular application of his principles to a particular problem. Doubtless he purposely oversimplifies and overstates his case for FAD in an effort to draw popular attention to the principles underlying it. Most of the socio-economic problems of the world, he believes, stem from institutional impotency. The frustrations encountered in attempts to solve economic problems within any current institutional framework can be overcome only by altering the framework. Some of the larger alterations which are mentioned in this book, itself dealing with a relatively limited application, are abandonment of national sovereignty and the market mechanism, and modification of the system of private property and inheritance.

ROGER W. GRAY

Stanford University

Labor Economics

Trends in Employment in the Service Industries. By GEORGE J. STIGLER. (Princeton: Princeton University Press, for the National Bureau of Economic Research. 1956. Pp. xviii, 167. $3.75.)

Professor Stigler, in this first comprehensive study of service industry employment, has produced an impressionistic essay rather than a source book. He accepts what is readily at hand from census materials and from earlier monographs, and concerns himself primarily with the broad trends that they reflect. The reader should not expect to find a sequel to the work of Fabricant on the manufacturing industries or that of Barger on mining and transportation, for this volume contains neither a systematic exploration of the statistics of service employment, nor qualitative analysis and estimation to fill gaps in the data.

The first section of the book is devoted to a consideration of relevant historical data on population, labor force, and income. Stigler here reports somewhat parenthetically on several experiments which had as their purpose the determination of whether static family budget patterns can be used to predict long-run trends in consumption, all of which turned out to be failures. The main body of the work consists of separate chapters on retail trade, routine personal services (domestic service, beauty and barber shops), professional services, and business services. The coverage is uneven, with retail and wholesale trade, domestic service, and education receiving the most attention.

There are many interesting observations scattered through the volume. To cite a few, Stigler finds that changes in the organization of retail trade probably reduced employment relative to sales by under ten per cent, which is less than might have been anticipated. The relative secular increase of employment in trade is attributed largely to urbanization, with changes in family size and female participation in the labor force as subsidiary factors. The hypothesis is advanced that "the absolute level of income is only a minor influence on the longer trends of consumption," although here one looks in vain for any serious effort to establish a working principle which is so fundamentally at variance with current economic preconceptions.

This is perhaps symptomatic of the principal criticism that might be made of the work, namely, that Stigler's enthusiasm for speculation occasionally outruns his data, with the result that unwarranted inferences are drawn or relationships are overly simplified. For example, the large number of self-employed entrepreneurs and the small size of the individual business in trade are cited as "a major explanation of the relatively small role of unionization in the service industries." A little reflection on the successful history of unionization in the building trades and in garment manufacture might have led to questioning this conclusion; the explanation is really much more complicated. Considerable space is devoted to the various factors that might conceivably affect the demand for domestic service in order to explain its decline in the face of rising levels of income, but only two brief paragraphs are accorded to a consideration of the supply of domestic servants, which may well be the key to the problem. There are a few interesting remarks on varying

international propensities to employ servants at identical income levels (this may even be true for different regions of the United States, though Stigler does not consider the question), but no real consideration of whether these propensities do indeed differ, and if so, why. In casting about vainly for an explanation of the absolute decline in the number of barbers, Stigler is apparently unaware of the extent to which the do-it-yourself movement has invaded the prerogatives of this ancient profession, resulting in an elasticity of demand which has proven painful indeed for the Barbers' Union.

In all fairness, Stigler makes no claim that his book represents a definitive study of service employment. Indeed, he specifically states: ". . . no simple rule describes the trend of employment in the promiscuous ensemble of service industries; a common group of forces seems to be operative in most of them; but we have not isolated all these forces or measured any of them very precisely." Let us hope that the National Bureau of Economic Research regards this volume as only the opening gun in a major campaign to elucidate the statistical history of a fascinating group of industries which are playing an ever-growing role in our economy.

WALTER GALENSON

University of California, Berkeley

The Practice of Unionism. By JACK BARBASH. (New York: Harper & Brothers. 1956. Pp. xii, 465. $5.00.)

In this excellent study on the practice of unionism, the author has broken down the dichotomy between structure and function of unionism and has presented the American labor movement from 1933 to the present time as a living, dynamic social phenomenon. The book should be of great value to teachers of industrial relations and to those people whose knowledge of unionism stems from the stereotypes presented in certain newspaper headlines.

For Barbash, the trade union movement does not represent an outline picture of structure and an outline picture of function. There is no clear-cut division; the structure of the trade union movement is made not only by the traditions of the past but by the dynamic forces of the present and by the personalities who leave their imprint upon the activities of the organization. He recognizes that the trade union movement is made up of people and that trade union leaders are also people, no better and no worse than others. The trade union belongs to that category of social institution which sometimes leads its membership in progressive ideology, community solicitude and social outlook and sometimes reflects the sordid outcroppings of a heterogeneous population, with few strong convictions except that of getting "more."

He analyzes the factors of union acceptance of minorities, which he describes as restrictive, practical, and ideological, as well as the prejudices which stem from our social fabric, and which have influenced the policies and actions of specific unions. Restrictive unions either prohibit minority workers from becoming members or restrict their participation in union affairs. The "practical" approach emphasizes the need to organize all workers for the ultimate goal of effective collective bargaining. The "ideological" approach represents equal treatment of all workers as an *act of faith.*

There is no doubt that the trade union movement may be accused of "big business" ideology as witnessed by Beck of the Teamsters' Union in his recent encounter with Congressional committees. But, on the other hand, the author points out that big business by union standards is certainly not synonymous with big business by business standards and that the "net worth of all unions including local units is not as large as that of one of the very large American corporations." This places in its proper perspective the attacks upon large unions and the merged labor movement as being monopolistic in economic as well as political control!

His chapter on the specific factors which influenced union structure has come a long way from the early Commons thesis that trade unions are influenced by either market expansion or methods of production. Barbash indicates that in a country that is dominated by the propulsion of economic growth, there are many factors other than technology and markets which are responsible for changes in the growth and structure of the American union. Certainly, the fact that the A.F. of L. and CIO have merged does not mean a common acceptance of a new type of structure, but rather an acceptance of a host of structures to meet the host of business patterns which have already been set up, and are being set up by industrial organizations.

There is an excellent discussion of jurisdictional conflict which plagues and which will undoubtedly continue to plague trade unions. Barbash declares that there is no evidence of correlation between the "degree of craftness" and the magnitude of jurisdictional disputes. He admits a "proneness," however, which he hopes will be minimized by the "internal disputes plan" of President George Meany. He states that the representation machinery of the National Labor Relations Board has contributed to the raiding problem by systematizing the machinery whereby one union can take away the representation rights from another. The A.F. of L.-CIO merger, one year after their marriage, is still struggling mightily with the problem of eliminating rival jurisdictions by voluntary mergers and agreements.

The role of the unions in the collective bargaining process, the author feels, depends not only upon the state of the economy, concepts of human welfare, status relationships, technology, but also upon the imagination, resourcefulness and intelligence of union leaders. (One might also add—management leaders.) This one fact takes the bargaining process out of the area of predictability which some labor economists have described in setting "patterns or satellite" influences. Since "liars can figure and figures can lie," wage statistics do not always clarify the negotiation process. The author admits that the union must secure "more" for its membership—but a wage policy reflects many pressures. The successful union leader must be a juggler able to evaluate these pressures as they are reflected in union politics as well as in the collective bargaining negotiation.

The author has written an excellent chapter on the use of technicians by the union. The life of a union is so complex that no man "up from the bench" can answer all the questions. The effective administration of a union now depends upon a host of skills—such as lawyers, educators, journalists, social workers, engineers possess. Barbash asserts that the elected officials determine

policy, but that the hired technicians advise, educate and elucidate. Since unionism tries to be a way of life—these skills are essential.

His discussion of the "imperatives of union leadership" in these days when leadership of a social and political nature seem to be sorely lacking, is provocative. He asserts that a union leader must have (1) a sensitivity to the immediate interests of his constituents and (2) a recognition that the union is a political organization. Spelled out in concrete terms this means a "maximum number of job opportunities for the union membership," "more pay for less work," and an "interest in the optimum profitability for the business that provide jobs." He offers a description of a number of union leaders who presumably have this sensitivity and recognition.

There are many facets of the American labor movement which Barbash has not discussed and with which labor economists are concerned. Why has an increasingly strong labor movement had so little influence on the distribution of the shares of national income? To be sure he does indicate that we have no way of ascertaining what the share of national income to labor would be like, if we had *no* labor movement. What force will take the place of the humanitarian and dedicated idealism of the early labor movement? Why must labor leaders conform to the standards of successful businessmen and widen the gap between themselves and the rank and file membership upon which they depend? Why are there two social environments in this country—a South which bitterly fights unionism in spite of federal legislation and the North which reluctantly accepts it? Will the A.F. of L.-CIO really attempt to organize the unorganized three-fourths of the working population, the Southern worker, the white-collar workers, the professionals or is the organization of these people blocked by their own need to be "liked," to be socially acceptable, to conform to the patterns of the "man in the gray flannel suit"?

Barbash knows the labor movement and the forces that make it tick—to him it is still a pragmatic, democratic, and vital institution keeping step, albeit sometimes haltingly, with the demands of an expanding economy in a world seething with contradictions.

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Work and Authority in Industry. By REINHARD BENDIX (New York: John Wiley & Sons. London: Chapman & Hall. 1956. Pp. xxv, 466. $7.50.)

In this volume the author presents a comparative analysis of the "ideologies of management which seek to justify the subordination of large masses of men to the discipline of factory work and to the authority of employers." A summary of his framework will provide some idea of the breadth of his undertaking. Bendix shows that in the initial stages of industrialization the entrepreneurial class is faced with the problem of gaining acceptance for industrialization and their own activities in the face of hostility from the older aristocracy and the newly formed work force. He traces the "entrepreneurial ideologies" which develop in this setting as aids in the struggle for industrialization. In time, as the industrial way of life gains acceptance and large-scale industry becomes subject to bureaucratization, the author argues that

the problem of acceptance is replaced by that of controlling and directing the activities of the workers. He examines "managerial ideologies" which take the place of the older ideas, and help employers carry out their role in the more advanced industrial societies. The author's task is not simply description but rather to demonstrate that differences in these "managerial" and "entrepreneurial" ideologies arise from the historical legacies and social structures of the countries going through the process of industrialization.[1] His method is to compare two different societies at different stages of industrial development. Taking his cue "from the present division of the world into East and West" he compares the ideologies that evolved in England and Russia at the inception of industry. He then traces the development of the major managerial ideologies of large-scale industrial enterprise in the United States (going back to 1880), and compares this with present-day East Germany. From the viewpoint of this study the civilizations of Russia and the West differ in "the extent to which social relations are free from, or are affected by, political decisions and governmental controls." Accordingly, in England and the United States entrepreneurs and managers are said to form an "autonomous social class" while in Russia and East Germany they are subordinate to government control. He argues that the differences between "social classes" and "bureaucracies" are reflected in the ideologies of management that have developed in the two civilizations.

Bendix attempts an extremely difficult task when he tries to support his analysis with the available evidence. He has made use of what might be termed the historical method in drawing extensively on contemporary sources to relate ideas to their social, political and institutional context. Although the analysis of each of his four sectors is a valuable contribution, this reader found the framework of the study somewhat strained. Partly this was because of the extremely fluid concept of ideology which the author uses in many different contexts. It is difficult for the reader to be sure he has grasped the author's meaning when he refers, for example, to an "ideological contribution" or "ideological response." The explanation and justification of authority, which the author includes in his definition of "ideologies of management,"[2] are not present in all of the ideas, beliefs and management approaches which are discussed as ideologies.[3] The comparisons which are the heart of the study are most significant in terms of the expanded meanings of "ideology" in each context.

In tracing the development of ideas and managerial behavior Bendix pre-

[1] There are many interesting parallels to Selig Perlman's analysis of the labor movements which developed in different historical contexts. "Entrepreneurial ideology" seems related to Perlman's concept of the "effective will to power" of the capitalist class. Selig Perlman, *A Theory of the Labor Movement* (New York, 1928).

[2] "All ideas which are espoused by or for those who exercise authority in economic enterprises, and which seek to explain and justify that authority. . . ." "No effort is made to distinguish between owners, employers, entrepreneurs, managers, or leaders of economic enterprises. . . ." There is no explicit reference to other concepts of ideology.

[3] *Cf.* F. S. Sutton, S. E. Harris, Carl Kaysen and James Tobin, *The American Business Creed* (Cambridge, 1956), pp. 1-15. The authors present a different approach to the concept of business ideology.

sents his interpretation of a fund of evidence which is impressive in its variety and magnitude. In several instances the sociological framework of his analysis leads to conclusions which require further examination. The civic isolation and deprivations of the newly formed industrial labor force seem to have been overemphasized. T. S. Ashton in his studies of the period[4] contends that, all in all, conditions of labor were improved by the spread of the factory, although the war and other economic factors worsened the status of workers for a time. Other studies cast doubt on the Hammonds' early analysis[5] and paint a dismal picture of preindustrial society. In the light of this material, what "rightful place in society" was denied the worker through industrialization? Bendix asserts that the "changes in career patterns of the American 'business elite' may be regarded as an outgrowth of internal bureaucratization in economic enterprises." In both cases economic, institutional and political factors should be considered together with bureaucratization in studying the changes that have taken place. Finally, I find it difficult to accept the author's conclusion that for Communist rule the "creation and manipulation of hostility between activists and workers is the fulcrum of its managerial practice and ideology." The analysis which leads to this position is excellent, but it appears to this reader to be less likely to apply to Russia than to the satellite countries. Bendix points out that the satellites *may be* distinguished from Russia by the high degree of hostility to the regime and strong passive resistance. The managerial ideology described by the author would seem to be appropriate to such an environment.

Bendix has given us a clearer understanding of the managerial approaches to the problems of industrialization. I believe, however, that the importance of the study lies in the author's explicit use of evidence and a sociological framework to study the development of ideas.

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[4] T. S. Ashton, *An Economic History of England: The 18th Century*, (New York, 1954); *idem.*, "The Standard Life of the Workers in England, 1790-1830," in F. A. Hayek, ed., *Capitalism and the Historians* (Chicago, 1954).

[5] J. L. and Barbara Hammond, *The Town Labourer* (London and New York, 1917); see also *Lord Shaftesbury* (London, 1923). In a later work the Hammonds revised some of their earlier views, *The Bleak Age*, rev. ed. (Middlesex, 1947).

Labor Economics and Problems at Mid-Century. By SIDNEY C. SUFRIN and ROBERT C. SEDGWICK. (New York: Alfred A. Knopf. 1956. Pp. xxvi, 385. $5.75.)

Planned for the undergraduate course in labor economics this textbook has for its central purpose, "To analyse the problems of employment, industrial relations and labor standards as they exist in the United States in the mid-twentieth century" (p. 18). In a general sense this objective proves broad enough to encompass the topics usually found in labor problems texts. Although the framework is economic, there is recognition of sociological and psychological forces. These, however, often appear more in the form of inclusion of terminology from these fields than as an integral ele-

ment in analysis. Perhaps this is an occupational characteristic of the labor economist.

After three introductory chapters to place unions in the setting of American capitalism and to describe labor markets, about one-fourth of the book is devoted to union history, structure and government. At an earlier point (pp. 30–33), Hoxie's functional interpretation of unions is sketched but it does not appear in any explicit sense in the union section itself. There is no discussion of the controversy concerning the "theory of the labor movement." These union chapters are well organized and clear. Perhaps the role of the top federation would be better characterized if more emphasis had been given to interunion relations. More attention could well have been given to the problems of union democracy, racketeering and monopoly. The last topic, particularly, cannot be disposed of by such statements as: "The multiplicity of small monopolies, or better, monopoloid institutions which are trade unions, however, tends to negate the economic monopoly effect of any of these unless these small monopolies tend to coalesce into some central monopoly body" (p. 379).

The relationship between unions and employment in the short run is developed through a marginal analysis "as a first approximation." This leads to the conclusion that "the distribution of employment between different firms and between capital and labor *is* determined by *relative* considerations of value productivity" (italics in original). No one would quarrel with this. The exposition, however, is concentrated on the single firm, and thus cannot explain the distribution of labor throughout a market or economy. (And unfortunately the presentation is garbled. Figures 10 and 11 [pp. 173 and 174] are transposed. Figure 13 [p. 176] is incomplete, with the result that there is text reference to symbols which do not appear on the diagram.)

There is also a brief sketch of the general theory of employment, which the uninitiated would have difficulty in comprehending. This is used to relate general wage changes and employment. Many teachers might feel that this and the preceding marginal material should be left to courses in economic theory unless they are utilized intensively to illuminate labor phenomena. Thus, the general theory of employment should be introduced only if there is to be detailed discussion of the policy measures designed to maintain a high level of employment. The marginal analysis should be introduced only if it is used to illuminate such matters as the dynamics of the geographical and occupational distribution of the labor force, labor mobility and wage differentials.

The labor standards section, which covers about one hundred pages, discusses the regulation of the employment contract, old age security, unemployment compensation and the law of industrial relations. The primary emphasis is on description. Old Age and Survivors Insurance and unemployment compensation are brought up only to 1954, although the unemployment compensation chapter has material on the automotive agreements of 1955. The section on the Sherman Act ends with the Clayton Act and makes no mention of the Hutcheson case and its significance. The original election provisions relating to union security are described as though

they were still contained in the Taft-Hartley Act (p. 327).

The discussion of industrial relations emphasizes the human relations approach more than the "environmentalist" approach. Here we have the optimistic view of an evolution of bargaining from belligerency to cooperation. If the term "active cooperation" means union-management cooperation or Selekman's "relationship of cooperation," many will suspect this comes close to wishful thinking.

The content of any textbook implies some concept of the division of function between the book, other student material and the classroom. Although this is rarely expressed by authors, it must be weighed by users. The reviewer believes this book could best be used where classes are conducted on a discussion basis with topics generally limited to the textual subject matter. There is a great deal of factual information, spiced by a judicious selection of cartoons. At a number of points just enough is said in a manner to stimulate curiosity and even a desire to read more. Enough positions are taken, with explanations which will not overwhelm the elementary student, so that a critical discussion is possible.

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Labor, Institutions and Economics. By ALFRED KUHN. (New York: Rinehart. 1956. Pp. xx, 616. $6.50.)

That this is precisely a textbook is at once the virtue and the weakness of Professor Kuhn's work. His express intention is to give us a pedagogical tool for the introductory course in labor. No "intelligent layman's guide to labor" is this, but rather a carefully organized, classroom-oriented textbook.

If the work is to be evaluated in terms of what it sets out to do, it must be called a success. In dealing with most of the topics which regularly appear in the introductory course, and with some which appear less frequently, its author always proceeds thoughtfully and tarries to analyze and evaluate each topic. Usually the analysis and evaluation are based on clearly stated criteria consistently applied.

Kuhn tells us that ". . . the general point of view I hold toward labor problems differs little from that of the better-known texts now available . . ." (p. v.). Reorganization of the conventional content of the introductory text is his purpose. The reader's response to this will depend on his view of the role of the textbook. A veritable tour de force of organization, categories and distinctions, the work is sometimes reduced to such statements as: "In most American experience the union is much larger than a bargaining unit unless the union is unusually small or the bargaining unit unusually large" (p. 185).

This is a good textbook and is to be commended as such; heaven knows there are many poor ones. But as a textbook it must accept the gibes of students and others who deplore the genus. He who studies it will learn; but he will be aware that he is studying an organized body of concepts and facts.

Divided almost equally between institutional and economic material, the text opens with two chapters discussing the origin and growth of the labor movement and its philosophy. There follows a chapter each on the structure

of management and of unions. The latter includes the author's comments on the AFL-CIO merger, the first of two or three expressions of opinion in an otherwise impartial survey. The process of collective bargaining is treated in five chapters in terms of bargaining for survival, *i.e.*, questions of union and management security, and of bargaining power. The discussion of the union-management relationship is made to hinge on bargaining power and variations in it. The direct results of bargaining are considered in one chapter and the nonbargaining functions of unions (including a survey of European unions) in another. Two chapters on public policy toward labor, well over half of which is devoted to an evaluation of the Taft-Hartley Act, close the institutional section. Unorganized labor is given little attention.

Part II is devoted to consideration of the size of labor's income and its regularity. The discussion of wage determination concludes that the approximate level of wages is determined by productivity, and the precise level of a specific wage is a function of many "frictional forces," especially bargaining power. The presentation of marginal productivity theory is somewhat unique; equilibrium within the firm and equilibrium in the market are treated as distinct problems. This reviewer cannot agree that the departure is as radical, or as useful, as the author believes.

The chapter on wage differentials is surely too long and too detailed for an introductory text. Job evaluation, arbitration, national wage controls, legislation, and bargaining are all examined as to their effects on wages. Unemployment and threats to job tenure are considered and a chapter is devoted to each of three methods of achieving security for labor: the maximization of job opportunities, control over access to jobs, and the provision of income in the absence of jobs. In each case public and private policies are considered. Many recent developments, *e.g.*, the guaranteed annual wage, health insurance, etc., are considered and specific cases are discussed. However, governmental full-employment policy is relegated to a brief discussion in the final chapter. This reviewer has reservations about the relative emphasis given to the topics in Part II—a matter which admittedly is the author's prerogative.

The work uses tables and figures only sparingly, but each chapter concludes with review questions and reading suggestions.

In general Kuhn seems to be a bit more at home with the institutional than with the theoretical material. (Page 338 and the footnote to page 424 reveal, in this reader's opinion, some discomfort with theory.) However, if the teacher shares the view which I attribute to the author, namely, that a textbook must be primarily ordered, systematic and specific and only secondarily appealing, then he will find this text a useful one for his introductory course.

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Related Disciplines

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NOTES

A nominating committee consisting of George H. Hildebrand, Raymond F. Mikesell, Paul M. Sweezy, George W. Terborgh, Ralph A. Young, and Eveline M. Burns, chairman, has submitted the following slate of nominees for 1958 officers of the American Economic Association:

President: George W. Stocking, Vanderbilt University

Vice President:

Martin Bronfenbrenner, Michigan State University
Seymour E. Harris, Harvard University
Richard A. Lester, Princeton University
George J. Stigler, Columbia University

Executive Committee:

Mabel F. Timlin, University of Saskatchewan
James Tobin, Yale University
A. G. Papandreou, University of California
Dale Yoder, University of Minnesota

Representative of Social Science Research Council:

R. A. Gordon, University of California

The annual meeting of the Association will be held at the Hotel Sheraton, Philadelphia, Pennsylvania, December 28-30, 1957. The co-chairmen of the Committee on Local Arrangements are Karl R. Bopp and Clay J. Anderson, Federal Reserve Bank, Philadelphia.

Publications

The Department of Applied Economics and Commerce, Patna University, Patna 5, India, is publishing an economic journal entitled *The Economic Papers*. The first number appeared in June 1956.

The first issue of a quarterly journal entitled *Victorian Studies* will be published in the fall of 1957 at Indiana University under the editorship of Philip Appleman, William Madden, and Michael Wolff. The journal, designed to examine Victorian culture, will include articles in the humanities, arts, and sciences, also book reviews and an annual Victorian Bibliography. Subscriptions will be $5.00 a year, or 35*s* in England. All communications and manuscripts should be addressed to The Editors, Victorian Studies, Indiana University, Bloomington, Indiana.

Deaths

J. Russell Boner, September 25, 1956.

C. K. Brown, professor of economics at Davidson College, January 1, 1957.

Douglas S. Brown, November 7, 1956.

Joseph W. Charlton, professor of economics and business at Grinnell College, January 31, 1957.

Mervyn Crobaugh, associate professor of economics at the University of New Mexico, January 18, 1957.

Willard E. Hotchkiss, September 18, 1956.

C. Clifford Huntington, who had served the Ohio State University since 1914, as chairman of the department of geography from 1921-34, and as professor up to his retirement in 1943, died November 29, 1956.

Duncan C. Hyde, professor of economics at the University of Virginia, February 26, 1957.

Erik T. H. Kjellstrom, November 7, 1956.

William M. Leiserson, February 12, 1957.

Alfred McCormack, July 11, 1956.

James E. Moffat, professor emeritus of Indiana University, January 9, 1957.

Myron Rosenfield, October 1955.

Bryce M. Stewart, November 12, 1956.

Erratum

The name of Guy-Harold Smith mistakenly appeared in the list of death notices published in the March 1957 number of the *Review*. This is a regrettable error for which apology is due Professor Smith.

Appointments and Resignations

Myer Alpert has been named assistant director of operations research and acting director of the operations research department of Slick Airways, Inc.

Leonard H. Axe, dean of the School of Business at the University of Kansas, has resigned to accept the presidency of Kansas State Teachers College.

Michael J. Brennan has been promoted to assistant professor of economics at Brown University.

William N. Breswick, senior economist, has been transferred from the Phoenix office to the headquarters office of Stanford Research Institute in Menlo Park, California.

Martin Bronfenbrenner has accepted an appointment of professor of economics at Michigan State University effective September 1957.

Yale Brozen has been appointed professor of business economics in the School of Business, University of Chicago, effective October 1957.

Sol Buchalter, formerly of the City College of New York, has been appointed assistant professor of business administration at Los Angeles State College.

Arthur F. Burns has returned to Columbia University after serving for four years as chairman of the Council of Economic Advisers.

Richard E. Caves, of Harvard University, has been appointed acting assistant professor of economics for 1957-58 at the University of California, Berkeley.

Ken Yoo Chiang, formerly of the RAND Corporation, has joined the department of economics of the University of Massachusetts.

Gordon C. Church has been appointed instructor in economics at the University of Saskatchewan for the year 1957-58.

Carlo M. Cipolla, of the University of Venice, Italy, will be visiting professor of economics in the department of economics, University of California, Berkeley, for the academic year 1957-58.

John M. Clark is retiring from Columbia University this year.

Paul G. Clark has been granted leave from Williams College to work at the RAND Corporation, Santa Monica, California.

Bernard Clyman has resigned from the University of Rhode Island to become director of research, Space Utilization Analysis, Inc., a division of Michael Saphier Associates, Inc., New York.

Sanford Cohen, of Western Reserve University, has accepted an appointment as associate professor of economics at Butler University.

Donald R. G. Cowan, of the University of Michigan, is directing a study of the growth and capital needs of the steel industry for the Brookings Institution.

Howard A. Cutler has been promoted to professor of economics at the Pennsylvania State University.

John A. Davis has resigned from the University of Alabama to accept an appointment as associate professor of economics at Mississippi State College, effective September 1957.

John C. Dawson has accepted an appointment as assistant professor of economics and business at Grinnell College.

Sergei Dobrovolsky has been on leave from Wayne State University to be visiting professor of economics at Rensselaer Polytechnic Institute in the spring semester.

William J. Donald has returned to this country after fifteen months' service as consultant to commercial and industrial associations in Lebanon and Turkey for the International Cooperation Administration.

Douglas F. Dowd has been promoted to associate professor of economics at Cornell University.

Clara Eliot has been promoted from assistant professor to associate professor of economics at Barnard College.

P. T. Ellsworth has been granted leave from the University of Wisconsin to serve as chief of an International Bank Mission to Thailand.

Howard L. Englander has resigned from the Wharton School, University of Pennsylvania.

Lionel Epstein has been instructor in economics at Boston University since September 1956.

Charles E. Ferguson has been appointed assistant professor of economics at Duke University, effective in the fall 1957.

W. J. Foreman is in India on contract with the University of Illinois—International Cooperation Administration program. His assignment is to assist college-level institutions to develop research, teaching, and extension programs in farm management.

Lawrence E. Fouraker has been promoted to associate professor of economics at the Pennsylvania State University.

Cedric W. Fricke has been appointed instructor in economics in Wayne State University.

Erich Gansmuller has been instructor in marketing in the Wharton School, University of Pennsylvania, in the spring term.

Siegfried Garbuny, of the Department of State, during his recent stay in Germany was awarded the degree of Doctor of Economics by the University of Freiburg. While there he also lectured under the auspices of the American Houses in Frankfurt a.M. and Freiburg.

Gerald J. Glasser has been promoted to assistant professor of economics in the School of Commerce, Accounts, & Finance, New York University.

Frank H. Golay has been promoted to associate professor of economics at Cornell University.

Michael Gort has been appointed associate professor of finance in the School of Business, University of Chicago.

John I. Griffen has been promoted from assistant professor to associate professor at the City College, New York.

James K. Hall, of the University of Washington, is head of a special tax mission to Korea for the U. S. Department of State and Treasury.

Lloyd C. Halvorsen has resigned from the National Grange to accept a position with the U. S. Department of Agriculture in Washington, D. C.

Albert G. Hart has been appointed to a research professorship in economics for 1957-58, initiated under a grant to Columbia University from the Ford Foundation.

Milton S. Heath, of the University of North Carolina, was elected president of the Southern Economic Association at its annual meeting in November 1956.

William G. Heuson is associate professor of finance at the University of Miami.

Forest Hill, of the University of California, Berkeley, has been appointed to the faculty of the School of Business Administration of the University of Buffalo as associate professor.

Robert E. Hill has resigned from the University of Alabama to accept an appointment as assistant professor of economics at the University of Illinois.

Henry Hodges, formerly of the University of Florida, is now professor of management at the University of Miami.

William C. Hoekendorf, of the University of Washington, is now instructor in economics at Montana State University.

Robert W. Horton has been instructor in finance in the Wharton School, University of Pennsylvania, in the spring term.

William R. Hoskins has been appointed faculty lecturer in accounting in the School of Business, Indiana University.

Boris Ischboldin, of Saint Louis University, will be visiting professor of economics at the University of Cologne this summer.

Henry R. Jaenicke has been instructor in economics in the Wharton School, University of Pennsylvania, in the spring term.

Mrs. Dell B. Johannesen has been lecturer in economics at the University of North Carolina in the spring semester.

Mark L. Kahn has been promoted from assistant professor to associate professor of economics in Wayne State University.

Jacob J. Kaufman has been appointed associate professor of economics at Pennsylvania State University.

John J. Klein has been appointed assistant professor of economics in the School of Business, Oklahoma A. and M. College.

Allen V. Kneese has accepted an appointment as assistant professor of economics at the University of New Mexico.

E. R. Kuchel has been promoted from assistant professor to associate professor of economics at the University of Wyoming. He has also been named head of the department of economics, sociology, anthropology, and geography, succeeding Ralph E. Conwell.

Ernst W. Kuhn has been promoted from assistant professor to professor of económics at the University of Wyoming.

L. John Kutish, formerly agricultural economist with the Federal Reserve Bank of Chicago, has accepted an appointment as associate professor of economics at Marquette University.

Samuel Laimon has been appointed instructor in accounting in the School of Business, University of Chicago.

David S. Landes will be on leave of absence from Columbia University in 1957-58 to be at the Center for Advanced Study in the Behavioral Sciences, Stanford, California.

Robert D. Leiter has been promoted from assistant professor to associate professor at the City College, New York.

Charles Lininger joined the staff of the Survey Research Center, Institute for Social Research, University of Michigan in July 1956.

Félix Díaz López has been named assistant director of the Office of Economic and Financial Research, Department of the Treasury of the Commonwealth of Puerto Rico.

Edward O. Lutz has been promoted to assistant professor of economics at Brooklyn College.

Will Lyons has been appointed assistant professor of economics at Haverford College.

William H. Martin has been appointed associate professor of economics at the Pennsylvania State University.

Daniel Marx, Jr., has been on leave from Dartmouth College in the past year to serve as a member of the senior staff of the President's Council of Economic Advisers.

Will E. Mason has been appointed associate professor of economics at the Pennsylvania State University.

Henry S. Miller has been promoted to professor of economics at Queens College.

John R. Moore has been promoted to associate professor of economics at the University of Tennessee.

Archie J. Nichols has been appointed associate professor of insurance at Butler University.

John H. Nixon has been appointed director of the Division of Economic Development of the New York State Department of Commerce.

John L. O'Donnell has resigned from the University of Notre Dame to accept an appointment as assistant professor of general business in the School of Business, Michigan State University.

James E. Parks, formerly of Harvard University, has joined the staff of Purdue University as associate professor of industrial management and transportation.

Frances Perkins, formerly Secretary of Labor, is visiting professor in the New York State School of Industrial and Labor Relations, Cornell University.

Boris P. Pesek has been appointed assistant professor in the department of economics of Michigan State University effective September 1957.

Chester A. Phillips, professor emeritus of the University of Iowa, has been visiting professor of economics at the University of Illinois this past semester.

Clinton A. Phillips has been promoted to associate professor of economics at the University of Tennessee.

Alfred Pierce, of Chatham College, has been appointed assistant professor of economics at Lafayette College effective September 1957.

Harold Pilvin has joined the secretariat of the United Nations in New York.

Jerry B. Poe, formerly of Washington University, is now instructor in the College of Business Administration, University of Arkansas.

John Power has been granted leave from Williams College to be a Brookings National Research professor in 1957-58.

Jerome Prevette has been instructor in marketing in the Wharton School, University of Pennsylvania, in the spring term.

Robert Rauner has resigned from Trinity College to accept a position with the RAND Corporation.

John H. Reedy, currently on leave at the Cal-Tex Oil Company, has been promoted to associate professor of economics at the Pennsylvania State University.

Jesse E. Roach has resigned from the Council for Economics and Industry Research, Inc. to accept an assignment as chief economic-political affairs analyst with the Department of Army in Korea.

David F. Ross has been appointed associate professor of economics at Florida State University.

Albert E. Safarian has been appointed associate professor of economics at the University of Saskatchewan.

Arthur W. Saltzman has been appointed instructor in economics at Wayne State University.

Joseph A. Salvia, Jr., has been instructor in finance in the spring term at the Wharton School, University of Pennsylvania.

Raymond J. Saulnier has been given extended leave from Columbia University to serve as chairman of the Council of Economic Advisers.

Robert Schrage, formerly with the Ferro Corporation, has joined the Stouffer Corporation of Cleveland, Ohio, as manager of market research for the Frozen Foods Division.

Richard E. Shannon, formerly of Michigan State University, has been appointed assistant professor of economics at Montana State University.

Geoffrey Shepherd, on leave from Iowa State College for six months, is in Rangoon, Burma, acting as adviser in the setting up of a rice price analysis and market research unit in the State Agricultural Marketing Board.

William D. Shipman has been appointed instructor in economics at Bowdoin College.

A. Howard Smith, formerly with Robbins and Myers, Inc., is now manager of the Commercial Research Department of the Jeffrey Manufacturing Company in Columbus, Ohio.

Boris M. Stanfield is retiring from Columbia University as of the end of the current academic year.

George J. Stigler, of Columbia University, will be at the Center for Advanced Study in the Behavioral Sciences, Stanford, California, in 1957-58.

Jacob A. Stockfisch has resigned from the University of Wisconsin to accept a position with the RAND Corporation, Santa Monica, California.

James H. Street is on leave from Rutgers University for a year to give a series of lectures on economic development in Argentina under the State Department International Educational Exchange Program.

H. Lee Sturgeon has resigned from the University of Kansas to accept a position with Arthur Andersen & Co.

Herman M. Sturm has been appointed director of the marketing division of the *American Weekly*.

James R. Surface, formerly of the Harvard Graduate School of Business, has been appointed dean of the School of Business of the University of Kansas.

Eugene L. Swearingen has been promoted from associate professor to professor of economics and dean of the School of Business, Oklahoma A. and M. College.

Joseph Taffet has been promoted from instructor to assistant professor of economics at the City College.

Philip S. Thomas has accepted an appointment as assistant professor of economics and business at Grinnell College.

Raymond D. Thomas, professor of economics and dean of the School of Business, is retiring as dean of the School of Business, Oklahoma A. and M. College.

Benjamin Thorn has been appointed instructor in business statistics and accounting at the University of Miami.

Daniel Thorner, formerly of the University of Pennsylvania, is serving as a consultant with the National Council of Applied Economic Research, Chanakyapuri, New Delhi, India.

John Y. D. Tse has been appointed associate professor of industrial management at Purdue University.

Felipe S. Viscasillas has been appointed director of the Office of Economic and Financial Research, Department of the Treasury of the Commonwealth of Puerto Rico.

Robert F. Voertman has accepted an appointment as assistant professor of economics and business at Grinnell College.

Edward L. Wallace has been appointed professor of accounting in the School of Business, University of Chicago, effective September 1957.

Murray L. Weidenbaum has resigned from the Bureau of the Budget to accept a position as senior operations analyst for the General Dynamics Corporation, Convair Division, Fort Worth, Texas.

John P. Wernette has been elected to the board of directors of the Ohio Citizens Trust Company and will serve as economic consultant to the bank.

Robert Wessel has been promoted to associate professor of economics at the University of Cincinnati.

Robert R. Williams, Jr., has been lecturer in finance in the Wharton School, University of Pennsylvania, in the spring term.

Edwin E. Witte has been appointed visiting distinguished professor in the economics department and Labor and Industrial Relations Center at Michigan State University effective September 1957.

VACANCIES AND APPLICATIONS

The Association is glad to render service to applicants who wish to make known their availability for positions in the field of economics and to administrative officers of colleges and universities and to others who are seeking to fill vacancies.

The officers of the Association take no responsibility for making a selection among the applicants or following up the results. The Secretary's Office will merely afford a central point for clearing inquiries; and the *Review* will publish in this section brief description of vacancies announced and of applications submitted (with necessary editorial changes). Since the Association has no other way of knowing whether or not this section is performing a real service, the Secretary would appreciate receiving notification of appointments made as a result of these announcements. It is optional with those submitting such announcements to publish name and address or to use a key number. Deadlines for the four issues of the *Review* are February 1, May 1, August 1, and November 1.

Communications should be addressed to: The Secretary, American Economic Association, Northwestern University, Evanston, Illinois.

Vacancies

Economics: Instructor or assistant professor in economics. Co-educational Catholic college desires M.A. in economics. Salary $4,500 to $5,500 per year. Successful applicant will teach only economics courses. Opportunity to work for Ph.D. locally. New campus. Opportunity to become chairman of the department when qualified. Address inquiries to: Frank L. Luken, Vice-President, Villa Madonna College, Covington, Kentucky.

Editor, college textbooks: New York publisher seeks young man to assume editorial responsibility for college textbooks in the social sciences. Should be familiar with liberal arts curriculum and should have had some experience in organizing material (not necessarily textbooks) for publication. Copy-editing and proofreading not required. Salary depends upon qualifications; excellent opportunity for rapid advancement. P185

Economics and statistics: The Air Force Institute of Technology, located at Wright-Patterson Air Force Base, Dayton, Ohio, has an opening for a teacher of economics and statistics, work to begin not later than September, 1957, but may begin sooner if applicant should so desire. The position will carry a civil service rating of GS-11 or GS-12, depending upon the qualifications of the applicant. The beginning salary for GS-11 is $6,390; and for GS-12 is $7,570. Applicants should have a Ph.D. degree in economics or in statistics, have mathematics through integral calculus, and be qualified to teach advanced courses in his specialty and intermediate courses in the other area. Successful teaching experience is also desirable. The teaching load will be light but it is expected that considerable time will be devoted to research in order that courses taught may have the greatest possible applicability to the needs of our students. Duties extend over the entire twelve months but one quarter of each year is usually devoted to study and research. Application should be addressed to Dr. James Roy Jackson, Dean, School of Business, Air Force Institute of Technology, Wright-Patterson AFB, Ohio.

Business administration: Professor wanted for fall, 1957, in private metropolitan university in the Middle West. Must have Ph.D. Salary and rank depend on previous experience, publication, etc. Full-time salary can be supplemented by summer teaching. Opportunity exists for consulting work in the community. P192

Economist: To do research and consultant work for the Office of Economic and Financial Research, Department of the Treasury, San Juan, Puerto Rico, on the basis of a one-year contract, renewable. M.A. degree in economics required; specialization in public finance desirable. No previous experience required. Annual salary $5,100.00 plus travel expenses to and from Puerto Rico. Persons interested please write to the Director of the cited office, P.O. Box 4515, San Juan, Puerto Rico.

Accounting: Christian liberal arts college in Pennsylvania desires candidate with a master's degree to teach accounting and a course in economics or business administration. Experience not required. Salary and rank depend upon training and experience. P194

THE AMERICAN ECONOMIC REVIEW

BERNARD F. HALEY, Managing Editor
DORIS MERRIAM, Assistant

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ARTICLES

COMMUNICATIONS

BOOK REVIEWS

Manuscripts and editorial correspondence relating to the regular quarterly issues of this REVIEW should be addressed to Bernard F. Haley, Managing Editor of THE AMERICAN ECONOMIC REVIEW, Stanford University, Stanford, California. *Style Instructions* for guidance in preparing manuscripts in acceptable form will be provided upon request to the editor.

OTHER DEPARTMENTS

The American Economic Review

VOLUME XLVII SEPTEMBER 1957 NUMBER FIVE

INCOME TAXES AND INCENTIVES TO WORK: AN EMPIRICAL STUDY

By GEORGE F. BREAK*

The question of how incentives to work are affected by high and steeply progressive income taxes has long been approached with caution by tax economists, whose answers have been full of tantalizing ambiguities. It has encountered no such reticence, however, on the part of the great bulk of financial experts and journalists who with ready clarity on the point have had no difficulty convincing the public of the truth of the axiom that high taxes inevitably mean a reduction in the aggregate work supply.[1] This has frequently been cited as one of the major causes of Great Britain's present economic tribulations and has been held up as a warning to our lawmakers to beware bringing the same fate on this country.

In the face of such overwhelming public opinion, the specialist who goes into the relevant economic theory in detail finds himself able to maintain with assurance only that the matter is not so simple. Whereas taxation certainly does tend to impair incentives by reducing the net monetary reward to be earned by an extra hour's work, it also exerts a quite opposite effect in that it lowers the taxpayer's disposable income and hence increases the pressure on him to earn more. Indeed,

* This study was carried out under a Social Science Research Council Research Training Fellowship during the academic year 1955-56 while the author was on leave from the University of California. He is indebted not only to the Council but to T. C. Lund and H. Horsfall Turner of the Law Society, Alan S. MacIver of the Institute of Chartered Accountants in England and Wales, J. W. Whitfield, Reader in Psychology at University College, London, and Alan T. Peacock of the University of Edinburgh for their invaluable assistance while the survey was being planned.

[1] In a recent sample survey carried out for the Royal Commission on The Taxation of Profits and Income, in which 1,429 workers in England and Wales were interviewed about their reactions to taxation, 73 per cent of the men and 60 per cent of the women said they thought that the income tax tended to reduce output because of its disincentive influence. See *Royal Commission on the Taxation of Profits and Income: Second Report* (London, 1954), p. 108.

to the extent that a family has committed itself to a high level of living expenses, incurring obligations such as mortgage payments, life insurance premiums, installment buying contracts, school and college fees for the children, and so forth, higher income taxes may virtually force the income earner to work harder in order to make ends meet. On theoretical grounds alone, therefore, it can no more be proven that taxation necessarily has a disincentive effect than that it has an incentive one.

The problem, it would seem clear, is one which must be resolved by empirical study. Theory, nonetheless, provides the guidance for designing such a study by suggesting the groups of people who are likely to be particularly sensitive to tax disincentives. It is evident from the beginning that those who are subject to firm institutional rigidities in their working lives are not so free to respond to incentive or disincentive pressures as are those who are self-employed or who have income-earning opportunities available to them outside their regular jobs. Where a choice is possible, disincentives will be found to prevail among those who respond more strongly to the attraction of the lower price for leisure resulting from higher marginal tax rates than they do to the wish to maintain given levels of disposable income in the face of rising taxes. Confronted with a tax increase of given extent, a person's reaction to it will depend upon how rapidly the marginal utility of income increases as income itself decreases—the more rapid the increase the more likely is the person to respond by working harder. People who are induced by higher income taxes to work less, then, are those who are not highly committed to their pretax levels of consumption and saving and they are most likely to be found among the upper-income groups, among older people who have already built up a reasonably satisfactory stock of consumer durables and investment assets, and among those in any age or income group who have few dependents, low indebtedness, and relatively modest needs both currently and in the foreseeable future.

The lack of empirical information about the interrelationships between factors of this sort and tax incentives and discentives led the author during the first half of 1956 to undertake a sample survey in the most vulnerable area possible—Great Britain, where income tax rates rise considerably more steeply than they do in the United States. At that time, for example, English married couples with two children and with incomes after allowable deductions falling in a range equivalent to that of \$5,000 to \$10,000 faced marginal tax rates of between 33.5 and 60 per cent; in the United States the corresponding tax rates were either 20 or 22 per cent.[2] The groups selected for the survey

[2] In Table A below the 1955-56 marginal tax rates on selected incomes in the two countries are compared on the assumption that an earned income of x pounds after deductions

—solicitors and accountants who were either partners or in business on their own—fall in the tax-sensitive category not only because they were all self-employed but also because, with their practices bringing them in continuous contact with tax problems, they were typically very much aware of the marginal rate at which they themselves were paying taxes.[3] In addition, being as a group somewhat older than the working-force average and belonging in large proportion to the middle- and upper-income categories, they should be particularly prone to tax disincentives. For example, 63 per cent of them faced marginal tax rates greater than 50 per cent.

I. *The Sample Studied*

Limitations of time confined the study to England, where 306 solicitors and accountants were personally interviewed by the author in London, its suburbs, and in 6 provincial areas, predominantly rural and agricultural in character and scattered geographically. This de-

allowed by the British tax law but before personal allowances is approximately equivalent to an income of 2.8*x* dollars after deductions allowed by the U.S. tax law and before personal exemptions. The figures given are those which prevailed at the time the study was made. Some moderate reductions were made in the British rates in April 1957 but, except for the two extremes of the income range, they still remain substantially higher than they are in this country.

TABLE A.—MARGINAL TAX RATES ON SELECTED EARNED INCOMES IN THE UNITED STATES AND THE UNITED KINGDOM, 1955–56

Total Income after Allowable Deductions but before Personal Exemptions	Marginal Tax Rate on Next Unit of Income Earned (per cent)			
	Single Person		Married Couple with Two Children	
	U.S.A.	U.K.	U.S.A.	U.K.
£ 400=$ 1,120	20	18.5	0	0
600= 1,680	20	26.25	0	8.75
800= 2,240	20	33.5	0	18.5
1,000= 2,800	22	33.5	20	26.25
1,500= 4,200	22	33.5	20	33.5
2,000= 5,600	26	40.8	20	40.8
2,025= 5,670	26	52.5	20	52.5
4,000= 11,200	38	65	26	65
6,000= 16,800	50	75	30	75
10,000= 28,000	62	85	43	85
20,000= 56,000	75	92.5	62	92.5
50,000= 140,000	89	92.5	78	92.5
100,000= 280,000	91	92.5	89	92.5

[3] The Royal Commission on the Taxation of Profits and Income, on the other hand, estimated that only between 3 and 5 per cent of their sample knew how they were affected by the income tax. *Ibid.*, p. 116.

sign enabled coverage of a wide variety of practices, both urban and country.

For the London sample 87 accountants were selected by taking every thirtieth name, with a random start, from the list for that area of practicing members of the Institute of Chartered Accountants (this list was used because the Institute's membership contains by far the largest proportion of self-employed accountants in the country). The choice of solicitors was slightly more complicated, since the Law Society's list separated the individual suburbs from central London. Accordingly, every fortieth name, from a random start, was taken from the metropolitan list, making 126 in all. Then 20 suburban solicitors were selected by first choosing 4 suburbs with probabilities proportional to size and then taking names by systematic selection from each one. (The over-all sampling fraction for this group was also 1 in 40.)

The country sample, consisting of 122 solicitors and accountants, was taken by systematic selection from 6 areas in Gloucestershire, Somerset, Warwickshire, Shropshire, Lincolnshire, and Cambridgeshire. The towns from which the selections were made varied in size from a few hundred to 80,000. The sampling fractions ranged from one-in-five to one-in-nine.

Of the total sample of 355 names, 28 were found to be no longer practicing in the sampled areas as a result of death, retirement, or other causes. Since by definition these people were not part of the sampled population, the sample was thereby reduced to 327 names. Of these, 3 of the London list could not be located even after extensive searching, 7 country practitioners were out of town during the periods of interviewing in their areas and 11 in all refused to be interviewed. The total failure rate, therefore, came to 21/327 = .064, and the refusal rate, among those approached, to 11/317 = .035.

The very low refusal rate may be attributed in no small degree to the willingness of both the Law Society and the Institute of Chartered Accountants to provide general letters of introduction which were used in requesting the interviews. There is no doubt that this not only increased the coverage of the samples themselves but encouraged a significant number of those interviewed to answer the questions more freely and thoroughly than they would otherwise have done. The consuming interest of the British taxpayer in matters of taxation could not, of course, be capitalized on in requesting interviews, since any mention of taxation on the part of the interviewer before the appropriate time would have destroyed the important *tabula rasa* effect which he was at pains to preserve. The letter mentioned only the interest of the interviewer in the "economic position" of the professions in England, and a mimeographed explanatory statement which was presented

to the prospective respondent at the same time as the letter was similarly careful, in describing the general nature of the project, to avoid anticipating or prejudicing his answers in any way.

The questionnaire, which was used in all interviews, was divided into several main parts. First, some simple questions were asked about the size of the firm, the number of staff employed, and the vital statistics of the respondent's own professional career. Next he was asked how long a vacation and how many extra "days off" he was accustomed to take each year, and how many hours he customarily worked in a week. Any changes he had made in this program in recent years were explored, and if the respondent had been in practice before the war his prewar working schedule was compared. The main part of the interview then turned to a discussion of his reasons for doing as much or as little work as he was doing, specifically as they involved his decisions to accept or reject new work for the firm, to take on income-earning opportunities for himself outside the firm, and to promote the expansion of his practice. If the respondent was over 45 years of age, he was also questioned about any retirement plans he might have made. At each stage of the discussion he was encouraged to name the main factors which had led him to the decisions he had made.

Throughout the interview so far the influence of taxation on the respondent's incentives to work entered the discussion only if he introduced it himself. Leading questions were avoided until he had had full opportunity to express himself concerning his reasons for doing the amount of work he was doing. Those who had not mentioned taxation on their own initiative were then asked directly whether this had been a factor in any of their decisions to take on or refuse work; whatever positive reactions they then indicated were explored in as much detail as possible. Those who had already mentioned tax influences were also questioned further about them, earlier statements being clarified and the not infrequent inconsistencies probed.

A few more questions followed, about the size of the respondent's family and the number of his dependents. Finally, he was handed a card on which fourteen income classes had been indicated, and he was asked to specify the one or ones in which his professional income before taxes and also his total taxable income fell. This request encountered surprisingly little resistance—of the 306 interviewed only 6 refused to give the top marginal tax rates to which they were subject and eight to disclose their professional earnings.

With one exception ("If more work had been offered to you last year, do you think that you would have taken it on?") the questions asked only for information about actual past behavior or definite plans for retirement, hypothetical situations not being posed or possible

action explored for the reason that a high degree of reliability was desired. A few internal checks to test consistency and reliability were provided in the questionnaire and proved useful as guides in evaluating the evidence obtained. The assertion of one ebullient Irishman, for example, that he was subject to a tax disincentive appeared far less convincing when compared with his statement at another point in the interview that he was working 80 hours a week because he liked to work hard and build up a practice. Even with certain checks and with a maximum of simplicity maintained throughout the questionnaire, however, the evidence yielded by the 306 interviews was a complex of varied reactions open to considerable diversity of interpretation. Such is the raw stuff of the social sciences.

TABLE I.—UNADJUSTED TAX INCENTIVE AND DISINCENTIVE RATIOS
(Combined Samples)

Type of Tax Effect	Proportion of Respondents Reporting Effect
1. Short-period tax disincentive	54/306 = .18
2. Short-period tax incentive	18/306 = .06
3. Incentive influence at retirement[a]	78/150 = .52
4. Total tax incentive	96/306 = .31
5. Some kind of tax influence[b]	128/306 = .42

[a] Only those over 45 years of age were asked about their retirement plans.
[b] As indicated by the relation between the numerators on the first three lines and that on line 5, 22 respondents reported more than one kind of tax influence.

II. *Tax Incentive and Disincentive Ratios*

A. *Unadjusted Ratios*

Slightly more than 40 per cent of the solicitors and accountants interviewed, or 128 in all, indicated that taxation had, or was going to have, some influence on their working lives. The most frequent response, given by more than half of those asked (see Table I) was that taxation forced postponement of retirement by preventing a person from saving enough to provide for his future support. Short-term incentives, however, meaning day-to-day and week-to-week longer hours and harder work were indicated by only 6 per cent of the respondents. Disincentives, on the other hand, were distributed in reverse fashion. There were no retirement disincentives reported—*i.e.*, earlier retirements as a result of high tax rates—whereas nearly one-fifth of the people interviewed cited taxation as a factor tending to decrease the amount of work they did on a short-term basis.

These ratios are, of course, only crude first approximations to the

true influence of taxation on work incentives. Included in the 128 respondents (row 5 of Table I) there are many who expected the tax influence mentioned to have an actual effect on their working habits only at some rather distant future date, some who themselves rated taxation as a possible though highly doubtful influence on their behavior, and some who had experienced tax influences on only one or two isolated and relatively unimportant occasions in the past. In the next four sections we shall first separate these people from those for whom taxation was a more important and definite factor and then reassess the influence of taxation in the light of these distinctions.

B. *Questionable Tax Influences*

Least weight must be given to those cases for which the tax effect had not yet occurred and was expected to do so only at some rather distant time or under certain hypothetical conditions. Reactions such as these are not without significance, but there are too many contingencies to make them comparable to those which have already been experienced.

Many of the retirement incentives fall in this questionable category, since for them the date of the expected retirement was by no means imminent. Of the 78 respondents mentioning retirement postponement 62 were under 61 years of age, and 50 of them were under 55. Their evidence is obviously rather tentative and must be considered to be of less consequence than that of 11 respondents who said that high taxation had already caused their retirement to be delayed, or of 5 others who said that they would have planned to retire in a year or so but for the demands of the Exchequer.

Three of the short-period incentive cases were of doubtful validity, their vagueness being summed up by one of their number when he said simply that "with more money as a result of tax reductions I might well take more leisure time." The "might well" school was liberally represented, too, in the disincentive category. Nine respondents who had not altered their work loads in any way in the past stated variously that they would very probably ease off somewhat in the future if taxes remained high. Three of them, all solicitors, were thinking of hiring additional staff to take over some of their work because the work was yielding them such a small financial return after taxes. None, however, was definite about when, if ever, he would carry out these plans. Two others said that unless taxes were reduced they would definitely limit their work when their incomes reached certain given levels, but for both the ceilings specified were substantially above their current earnings. The possibility that their aspirations would rise once the more opulent levels were reached and the accompanying satisfactions tasted

was not probed. Five other disincentive cases offer similarly weak evidence. These respondents suggested that, on a few isolated occasions in the past when they had turned down work, taxation might have had some bearing on these decisions; at best, however, they felt that this had been only a minor factor, if one at all.

Table II gathers together these cases characterized by questionable evidence and eliminates them from the unadjusted incentive and disincentive ratios of Table I. This leaves us with all those respondents whose incentives to work seem definitely to have been affected in some way by taxation. (As will be seen from line 3 disincentives now predominate slightly.) Even these ratios, however, must be subjected to

TABLE II.—ADJUSTED TAX INCENTIVE AND DISINCENTIVE RATIOS (COMBINED SAMPLES): ELIMINATION OF CASES INVOLVING HIGHLY QUESTIONABLE EVIDENCE

Type of Tax Effect	Disincentive	Incentive
1. Reported, regardless of reliability (Table I, lines 1 and 4)	54/306=.18	96/306=.31
Less:		
2. All cases involving highly questionable evidence	14	65
Equals:		
3. Definite tax influences	40/306=.13	31/306=.10

further analysis before the real effects of taxes on the labor supplies of the respondents can be ascertained.

C. *Definite Tax Disincentives*

Forty respondents declared definitely that they were under some disincentive pressure from taxation. Since these pressures made themselves felt in different ways and were by no means of equal force, our next step is to classify them according to their economic effect and then to evaluate them according to their strength and importance. Three patterns emerge.

The first type of effect was reported by 19 respondents who said that taxation had been a definite factor in their decisions to turn down work offered to them at various times in the past. The importance of the tax influence may be evaluated on the following grounds: (1) the extent to which the lessening of effort seemed to be a conscious, tax-induced policy on the part of the respondent—as judged by his mentioning it on his own initiative rather than advancing it only after the tax disincentive had been suggested by the interviewer; (2) the number of times in the recent past that the tax disincentive had been experi-

enced; (3) the respondent's own estimate of the importance of the tax factor—*i.e.*, whether he himself rated taxation as the chief reason for declining the work, or as one among several equally important considerations, or as a distinctly secondary concern. The details of this analysis need not be given here, but the result is a ranking of the 19 respondents according to three different magnitudes, or orders of significance:

(a) Six respondents are of primary consequence here. All of them rated taxation as the crucial factor in their decisions to do less work, and they offered this evidence entirely on their own initiative. The tax effect had, moreover, occurred frequently enough in the past to warrant its being regarded as important from an economic point of view. All 6 faced marginal tax rates of 60 per cent or more, and 2 of them were at the 85 per cent level or above. One said that he turned down work frequently, 1 that he did it every day, and 2 others that they declined many outside opportunities of earning income as well as some legal cases (although they took on all work brought to them by established clients and any new clients recommended by them). A fifth had left a partnership and set up an independent firm of his own because he felt he had been working too hard as a partner in relation to his income net of taxes and was freer as a sole owner to cut down his work to his own requirements. The sixth, a sole proprietor 68 years old, had worked hard until 1951, earning a pretax income of between £6,000 and £7,000 a year, and as a result had injured his health, been under a doctor's care for two years, and upon returning to work had eased up considerably because the gain from sustainedly hard effort was not, after taxes, worth risking his health for a second time; his 1955 pretax income was a little less than £2,000.

(b) By contrast with the preceding group, 3 other respondents belong in the bottom significance bracket, since for them the tax issue was by no means paramount. One rated taxation as a definite but secondary factor in his relatively infrequent decisions to decline work (thereby raising the speculation that a small tax reduction would not affect his behavior at all, although a larger decrease might presumably induce him to do more work). The other 2 had turned down work on just one occasion apiece, partly because of taxation, partly because the work would have involved a good deal of travel, and (in view of these considerations) partly because the work was not for an established client.

(c) The remaining 10 respondents form a somewhat diffuse middle group. Among them there is considerable variation as to the strength of the evidence and the importance of the tax effect, but it is doubtful that a finer classification would be very fruitful.

A second pattern is formed by a group of 10 respondents on whom

taxation exerted a different type of disincentive pressure. They took on all work that came their way, either for the firm or on the outside, but they were less active in seeking new business than they would have been under lower tax rates. Most significant here are 3 individuals who said that high tax rates had prompted them deliberately to curtail the promotional efforts (largely participation in social and professional activities) which normally serve to attract new clients. One of them summarized their general reaction as follows: "If taxes were lower I would display more energy in trying to increase business. One is not prepared to drive oneself really hard and perhaps endanger one's health under present tax rates." These 3 could give no estimate of the extent to which their efforts had been reduced or of the total effect on their practices, but they were conscious of the tax influence, as is shown by their promptness in mentioning it on their own initiative. Six others reported the same type of tax effect, but their evidence must be considered of less significance for our purposes since it came out only in response to the direct tax questions. The tenth respondent occupies the place of least importance in this pattern, since taxes were for him only one among several factors which at one time had led him to decide against expanding the scope of his practice. The fact that he was, even so, working more than 80 hours a week suggests that lower taxes would be unlikely to induce much increase in the supply of his professional services.

Pattern number 3 has to do with disincentives of a special type and contains only 2 significance classes. These disincentives took the form of shifting work loads within individual firms. Eleven respondents had, because of their own high tax rates, turned over work to partners or to staff hired for that purpose. The total volume of business handled by the firm was not reduced, therefore, but individual members were doing different amounts of it, the economic rewards being adjusted accordingly.

One interesting aspect of this type of tax effect is that the work reallocation tended to circumvent several of the institutional rigidities noted in the professions studied—*i.e.*, the moral obligation not to refuse a client's request for assistance, the professional pride in the firm, and the "expand or perish" maxim which calls into serious question a firm's ability to maintain the level of work it wants if it acquires a reputation for turning clients away. By taking in new partners and expanding staff a firm is able to accept all work offered to it, and even increase its volume, at the same time that certain members (usually the higher-paid ones) who find their incentives sapped by taxation can take more leisure. In this way there is no risk of sacrificing valuable goodwill.

The fact that none of the 11 respondents subject to this kind of disincentive brought it up on his own, but only in answer to the direct tax questions, is not surprising, nor does it in this case make the evidence less convincing. The particular effect involved was not in the direct line of inquiry up to that point, since none of the preceding questions had given the respondents any opportunity to discuss the factors affecting decisions to take on more staff or additional partners. Since, then, the late appearance of the tax evidence does not necessarily imply low reliability, the 11 cases have been ranked entirely on the basis of the strength of the tax factor and the importance of the changes induced. Ten of the people involved cited taxation as the sole or most important cause of the work shift, and the magnitude of the effect was considerable in each case. Seven among them had been induced to hire additional staff, and all 7 had a staff-partner ratio of 5 or greater,

TABLE III.—RESPONDENTS REPORTING A DEFINITE TAX DISINCENTIVE CLASSIFIED ACCORDING TO THE TYPE OF DISINCENTIVE AND ITS ECONOMIC SIGNIFICANCE

Type of Tax Disincentive	Economic Significance Rating		
	Greatest	Middle	Least
1. Refusal of work offered to the respondent	6	10	3
2. Reduced incentives to seek new clients	3	6	1
3. Shift of work load within the firm	10	1	0
4. All effects	19	17	4

whereas less than one-half of those who reported no tax effect on the size of their staffs had such a high ratio.[4] These 10 therefore rate the top significance level, a lower ranking being given to the eleventh case, in which taxation was only one among several motivating factors.

Table III assembles the results of the preceding classifications and shows the 40 definite tax disincentives ranged according to the type of effect experienced and its economic significance.

D. *Definite Tax Incentives*

The 31 respondents reporting definite tax incentives may be classified in a similar way. Of the 17 who said that taxation was preventing them from retiring as soon as they would have liked, 15 belong to the first order of significance. These introduced the tax influence on their own, cited it as the chief reason for their delayed retirement, and were either close to or past the age at which they would have preferred to retire.

[4] Chi-square analysis indicates that this difference is statistically significant at the .01 level.

The other 2 respondents in this category gave both taxation and a strong interest in their work as reasons for delaying their retirement, and hence have been allocated to the middle-significance level.

The remaining 14 incentive cases felt themselves forced by taxation to work harder on a day-to-day basis than they would have if they had been able to retain more of their earnings. These incentives took a variety of forms. Six said that high taxes kept them from hiring as large a staff as they otherwise would have maintained, with the result that they had to do more work themselves. Typical here is the following comment, made by one of the group: "I am doing work that I am not trained to do, because of taxation. I cannot afford to hire the help needed to do the work for me." One man was able to give a prewar comparison; he was definitely working harder than he had before the war because he could no longer afford such a large staff and now had to do many menial jobs formerly done by them. The problem of how much this situation was due to taxation and how much to higher wage rates for staff complicates the picture, but comparisons with the staff-partner ratios of the firms of respondents who reported no tax effect tend to substantiate the assurances of the 6 that taxes were the main reason for their staff cuts. Five of them (*i.e.*, 83 per cent) had fewer than 5 staff members for each partner in the firm; among respondents reporting no tax effect on the size of their staffs, only 52 per cent had a staff-partner ratio of less than 5.[5]

The other 8 in this short-period incentive group were simply taking on all the work they could handle, sacrificing the leisure that they would have taken with less pressure from taxation. Seven of them stated that they would definitely take on more work if it were offered to them; the eighth said that he couldn't because he was already greatly overworked.

All 14 were unequivocal that taxes were the goad, although this was not typically brought out until the tax questions were asked. In deciding whether the late appearance of this evidence reduces its validity it is important to take into consideration a psychological phenomenon which the survey clearly bore out—the propensity of the average person, although quite aware of the disincentive potentialities of taxation, to overlook its possible incentive effects.[6] This fact, combined with the

[5] The probability of a difference this large as a result of chance forces alone is approximately .13.

[6] A random selection of those who said that taxation had not affected their supplies of labor were asked about a possible incentive influence, and a significant number of them were surprised to realize that this was a possible effect. All of these people, incidentally, have been classified for purposes of this paper in the no-tax-effect category even though a few felt, after having the incentive possibility pointed out to them, that they might be subject to some incentive influence.

TABLE IV.—RESPONDENTS REPORTING A DEFINITE TAX INCENTIVE CLASSIFIED ACCORDING TO THE TYPE OF INCENTIVE AND ITS ECONOMIC SIGNIFICANCE

Type of Tax Incentive	Economic Significance Rating		
	Greatest	Middle	Least
1. Postponed retirement	15	2	0
2. More work on a day-to-day basis	8	5	1
3. All types	23	7	1

respondents' inability in most cases to estimate the extent of the incentive influence to which they were subject, makes it very difficult to draw an exact comparison between the incentive cases and the distincentive ones; the same criteria do not apply in equal measure. The significance classification for row 2 of Table IV has been based primarily on the certainty of the respondent that taxation was the main factor leading him to work as hard as he was working and on the warmth of his desire to expand the size of his practice (as indicated by the answer he gave to a question asked early in the interview, before the direct tax questions).

E. *Adjusted Tax Incentive and Disincentive Ratios and Their Interpretation*

Weighted according to the reliability, frequency, and importance of the tax effect, our evidence is reassembled and presented in its most highly refined form in Table V. On the first line the ratios are given for the incentive and disincentive groups to which only the greatest significance is attached; on each subsequent line one group of progressively less significance is added in, until on the fourth line all the tax effects that were reported, regardless of certainty, are included.

TABLE V.—ADJUSTED TAX INCENTIVE AND DISINCENTIVE RATIOS
(Combined Samples)

Significance Rating	Disincentives	Incentives
1. Greatest	19/306 = .06	23/306 = .08
2. Greatest + Middle	35/306 = .12	30/306 = .10
3. Greatest + Middle + Least (All definite tax effects)	40/306 = .13	31/306 = .10
4. All tax effects, definite + questionable	54/306 = .18	96/306 = .31

Sources: Line 1. First column of Tables III and IV.
Line 2. Sum of first two columns of Tables III and IV.
Line 3. Sum of all columns of Tables III and IV. Also Line 3, Table II.
Line 4. Line 1, Table II.

One's final estimate of the extent to which the work incentives of the 306 solicitors and accountants interviewed during the course of this survey were affected by the income tax depends upon the strictness with which he interprets their evidence. The most conservative evaluation would include only line 1 of Table V and allow that less than 15 per cent of the sample were to an important extent impelled to increase or decrease their labor supplies, the incentives prevailing slightly over the disincentives. A less narrow estimate, on the other hand, or one that could be called a moderately conservative view, would hold that just over 20 per cent of the entire group were adjusting their working lives to the pressures of taxation, with a little more than half of them cutting down on work and a few less than half working harder. If our standards of judgment are relaxed so as to include all those who indicated even the rather distant future likelihood of some tax influence, we find nearly 20 per cent reporting an impairment of incentives due to taxation and over 30 per cent evidencing the opposite effect.

A number of the tax effects shown in Table V are not simple, unidirectional effects and illustrate further the complexity involved in interpreting the evidence. The 71 definite tax effects shown in line 3 of Table V were in fact reported by only 66 individuals, since 5 of the respondents gave evidence of both an incentive and a disincentive influence from taxes. All 5 had reacted to high postwar taxation by working less hard on a day-to-day basis and then later had found it necessary to postpone their retirement because taxes had made it impossible for them to put aside sufficient savings. They were, in effect, averaging their incomes over a longer working lifetime. As might be expected, none of them was able to say whether the net effect was in the incentive or the disincentive direction, and the further question remains as to whether, for each individual the services withdrawn were of the same quality as those added to the total labor supply. Some, because of increased knowledge and skill, would be able to render better services in their more advanced years than they would have under lower taxes earlier in their working lives; others would undoubtedly have been more vigorous and effective in the earlier stages of their careers.

Even if the figures shown in Table V were simpler and easier to interpret, however, the net effect of income taxation would not be shown by a straight subtraction of the incentive and disincentive percentages. At best only a rough estimate of the magnitude of the tax influence could be made in each case, and many of the respondents reporting an incentive effect could be no more specific than to state merely that they were working harder because of taxation. Even if it could be demonstrated that the work hours sacrificed by the 6 per cent

who were subject to a definite and important tax disincentive were exactly made up by the 8 per cent who felt a significant tax incentive, it cannot be assumed that services of equal quality would be obtained in the exchange. The only evidence that could be obtained relevant to this point indicates that the services withdrawn because of taxation might well be of a higher average quality than the additional services offered by those forced to work harder.[7] This would suggest that there might be some net disincentive effect from taxation on the accountants and solicitors interviewed. The fact that neither the qualitative nor the quantitative dimension of the problem can be measured with any precision, however, means that this conclusion, like any estimate of the magnitude of the net effect, is almost purely speculative. It can be stated with considerable certainty, nonetheless, that this net effect, be it disincentive or incentive, is not large enough to be of great economic or sociological significance.

III. *Relation of Tax Effects to Other Factors*

In considering the reasons that the enormously high postwar tax rates in Britain have not reduced the aggregate labor supply of our sampled groups more than they have, we must not fail to take into account a number of nontax factors which were observed. In addition to the "institutional rigidities" referred to earlier,[8] the chief nonmomentary incentive factor was the attractiveness of the work itself for people in professional practice. Many of the respondents said unequivocally that in spite of the greatly reduced monetary rewards realized since the war they were working as hard as ever because they liked their work. Some, of course, were ambitious to make or maintain high reputations in their professions. Others would agree with the respondent who stated candidly, "The thought of retirement nauseates me." For still others with less intense reactions the motivating force was habit. Whether the reason was lack of enjoyment of leisure or genuine pleasure in working, the end result was for such people a negation of whatever disincentive effect income taxation might have had.

Partnerships. Another major deterrent to complete freedom of action in response to tax influences was the fact that most professional people, although self-employed, are not independent agents but have partners to consider. When a member of a partnership turns down work on behalf of the firm, he reduces not only his own income but also the incomes of his partners; conversely, when he works overtime

[7] Over half of the 19 respondents reporting a significant tax disincentive earned £3,000 or more from their professional practices and may therefore be presumed to render services of the highest quality; only one-fourth of the 23 significant tax incentive cases, on the other hand, earned as much as £3,000 a year.

[8] See above, p. 538.

he realizes not the whole benefit, or even that which taxation leaves him, but only his allotted share. This applies, of course, only to the short run since partnership shares are adjustable, but 5 respondents in the present survey stated explicitly that this was one of the reasons that taxation had no disincentive effect on them.

Fortunately for our present purposes the sample interviewed contained enough sole proprietors to make some interesting comparisons possible between them and members of partnerships. Table VI summarizes these findings. In the first two rows are shown the numbers of sole proprietors and of partners subject to definite tax disincentives and short-term incentives. In the third row are included not only those respondents who indicated no reaction to taxation as far as their labor supplies were concerned but also those who were subject only to a disincentive on outside ventures or to an incentive on retirement, both examples of tax effects that should not vary as between partners and sole owners. It will be noted that sole proprietors show a greater sensitivity to both tax incentives and disincentives than do partners, and the χ^2 test indicates that these differences are statistically significant at the .01 level.

TABLE VI.—SENSITIVITY OF SOLE PROPRIETORS AND PARTNERS TO TAXATION
(Combined Samples)

	Sole Proprietors		Partners		Total
	Actual	Expected	Actual	Expected	
Definite tax disincentives	16	(9.2)	21	(27.8)	37
Definite tax incentives	6	(3.7)	9	(11.3)	15
No tax effect	50	(59.0)	187	(178.0)	237
	72		217		289
	$\chi^2=10.535$				

Table VII breaks down the figures in terms of the significance-range used earlier. Ratios are presented for those in the highest significance category alone and for those in the more inclusive "All Definite Tax Effects" category. In addition to the conclusion that sole proprietors are more sensitive to taxation, this table shows that among sole proprietors disincentives tend to exceed incentives, whereas among partners the two types of tax influence are approximately equal.

Marginal Tax Rates. As suggested at the beginning of this paper, theoretically the reaction of individual labor supplies to progressive income taxation should vary with the income level, disincentives being concentrated at the top of the income scale and incentives at the bot-

tom. Table VIII shows that these expectations are borne out in the present survey as far as disincentives are concerned, but tax incentives are rather evenly distributed over the 4 income classes distinguished.[9]

Fixed Commitments. The other major correlation postulated at the beginning of this paper is that between incentives to work and the fixed monetary commitments to which the individuals involved are subject. As originally designed, the questionnaire used in the interviews contained a number of questions aimed at determining the level of such commitments for each respondent. Pretest interviews, however, indicated that this information could not be obtained without prolonging the interviews to an impractical extent, so the questions were dropped.

TABLE VII.—SOLE PROPRIETORS AND PARTNERS: TAX INCENTIVE AND DISINCENTIVE RATIOS

	Sole Proprietors		Partners	
	Disincentive	Incentive	Disincentive	Incentive
Greatest significance	7/72 = .10	5/72 = .07	11/217 = .05	16/217 = .07
Definite tax effects	16/72 = .22	10/72 = .14	24/217 = .11	21/217 = .10

TABLE VIII.—TAX INCENTIVE AND DISINCENTIVE RATIOS FOR DIFFERENT INCOME GROUPS

	Total Taxable Income (in pounds)			
Greatest significance	Under 2,000	2,000–3,000	3,000–5,000	5,000 and over
Disincentives	1/112 = .01	3/63 = .05	5/71 = .07	10/54 = .19
Incentives	9/112 = .08	4/63 = .06	5/71 = .07	5/54 = .09
All definite				
Disincentives	7/112 = .06	7/63 = .11	10/71 = .14	16/54 = .30
Incentives	12/112 = .11	5/63 = .08	7/71 = .10	7/54 = .13

Adequate information for a simple, two-class breakdown was obtained, however, from the questions asked about the respondent's age, the number of his dependents, and the level of his total taxable income. With the assistance of data collected by the 1951-52 National Survey of Personal Incomes and Savings for Great Britain,[10] giving correlations between the ages of income earners and the percentages of their gross incomes which are devoted to contractual saving (life insurance

[9] Various χ^2 tests of independence, applied to each of the different interpretations of the tax evidence given above in Table V, consistently rejected the null hypothesis that there is no relation between the incidence of tax disincentives and marginal tax rates.

[10] H. F. Lydall, "National Survey of Personal Incomes and Savings: Part IV, Personal Savings and Consumption Expenditures," *Bull. Oxford University Inst. Stat.*, Oct. and Nov. 1953, XV, 358.

and mortgage payments, pension contributions, etc.) and durable expenditure (automobiles, television sets, etc.), some inferences can be drawn with considerable confidence as to some of the basic commitments of our respondents.

The financial pressure of fixed commitments is likely to be most heavy on those respondents whose incomes are less than £2,000 a year and who at the same time are under 40 years of age with 2 or more dependents or between 40 and 45 with at least 3 dependents. In the light fixed commitments category are all those who are single, all those over 45 who have only 1 dependent, and those from the medium age-dependency range (under 40 with 1 dependent, 40 to 45 with 1 or 2 dependents, or over 45 with 2 or more dependents) who have incomes of £3,000 and above. This classification allows for a reasonably wide

TABLE IX.—TAX EFFECTS AND THE PRESSURE OF FIXED COMMITMENTS

	Heavy Fixed Commitments		Light Fixed Commitments		Total
	Actual	Expected	Actual	Expected	
Definite tax disincentives	0	(5.5)	26	(20.5)	26
Definite tax incentives	1	(1.5)	6	(5.5)	7
No tax effect	34	(28.0)	99	(105.0)	133
	35		131		166
	$\chi^2=8.8$ (significant at the .02 level)				

separation between the two groups which are being compared, excluding from the comparison those in the middle ranges whose allocation would be equivocal.

The most striking feature of Table IX is the distribution of tax disincentives. No respondent with relatively heavy fixed commitments in relation to his income reacted to taxation by contracting his supply of labor; all 26 of the disincentive cases occurred within the group subject only to light commitments. The small number of tax incentive cases unfortunately makes impossible any conclusions about their relation to the level of fixed commitments.

Other Correlations. Statistical tests of data obtained in the course of the survey bring to light a number of other correlations worthy of note. Studies of the relationships between the tax incentive and disincentive cases and the average number of hours worked per week by the individuals affected tell something about the kind of people who are subject to these opposing tax influences. Those who were cutting down their work supplies because of income taxes were still not working less,

on the average, than those who were unaffected by taxation. The inference is clear, then, that the tax disincentives were concentrated among respondents who were by nature more hardworking and ambitious than the average. As for those who were impelled by high taxes to work harder, the figures show that they were indeed working more than the average number of hours each week; since we do not know exactly how much extra time they were putting in as a result of taxation, we can only conclude that this group was by nature of at least average ambitiousness. Those who are affected one way or the other by taxation, in other words, seem for the most part to be among the more energetic members of their professions.

The theoretical conclusion that people's tastes and general living standards are largely a function of their professional status and hence that a significant amount of independent income from property tends to relieve the economic pressure upon them and make them freer to react to tax disincentives is substantiated by the present survey. The figures show that among respondents with equal professional incomes the ones with significant amounts of income from property are more subject to tax disincentives than the others.[11]

Comparisons of the two professional groups studied show that solicitors and accountants showed approximately the same reactions to taxation.

As for geographical distribution, the incidence of tax incentives was about the same in the London sample as in the country sample, but tax disincentives tended to occur less frequently among London respondents than among those practicing in the smaller communities, in spite of the fact that London respondents typically faced higher marginal tax rates. Since the country sample contained a higher proportion of sole proprietors (whose greater sensitivity to tax disincentives has already been noted) separate London-country comparisons were made for the two kinds of practices. These showed that although sole operators evidenced no rural-urban differences, partners were definitely more susceptible to tax disincentives in the country than they were in London. The implication may be that residents of the large metro-

[11] The statistical tests do not, of course, completely separate the effects of property income on work incentives from the effects of higher marginal tax rates. Unfortunately, the existence of the earned income allowance in British tax law precluded any finer distinctions. Of two people with the same total income and paying tax at the same marginal rate, the one with more property income will, since he has less earned income and therefore obtains less advantage from the earned income relief, pay tax at a higher average rate than the person with less property income. The higher average rate will, by itself, induce the taxpayer to work harder and will tend, therefore, to obscure the opposing effect of the possession of property income. It is true that at the time of the study the earned income allowance ceased when earned income reached £2,025, but too few respondents with earned incomes above that figure were obtained in the sample to permit statistically significant comparisons of property owners with others at given levels of total income.

politan area are more subject to living-standard pressures than their country colleagues; if so, it would suggest that increasing urbanization may tend in the long run to reduce the disincentive impact of high taxation.

IV. *Conclusions*

The survey was undertaken only after extensive study of the literature on the subject had convinced the author that a great deal of empirical work remained to be done.[12] Earlier empirical studies had been either too broad or too specific to show a rounded picture of the tax reactions of one economic segment of the population, and most of them had concentrated on salary or wage earners who had relatively little freedom to vary the quantitative dimension of their work supplies. The fact that a comparatively small number of tax disincentives was discovered, then, was not at all surprising. The present survey tested, on the other hand, a reasonably substantial segment of a highly tax-sensitive group—*i.e.*, self-employed professional practitioners whose business overhead was small, whose business commitments to others (staff, partners, etc.) were sufficiently limited and flexible to allow a good deal of freedom of action, and whose type of work permitted piecemeal reductions without the sacrifice of the entire enterprise. The expectation was, in other words, that, particularly in a society where the tax rates are as high as they are in England, a considerably higher proportion of tax disincentives would be encountered than in earlier studies.

The fact then that the results showed no such rise in the incidence of disincentives is of considerable significance. The proportion was, indeed, about the same as that found by the Royal Commission in their study of a very different socio-economic group (factory workers earning less than £1,500 a year). The chorus of complaints, vehement and eloquent, against "penal" taxation, echoed by the great majority of respondents interviewed for the present study, was surprisingly infrequently translated into action. It was almost a commonplace for respondents to state categorically that taxes were removing all their incentives; but when the facts were assembled, about as many actually were working harder as were working less. As one of the more candid put it, "When you really get down to it, I am working as hard as I ever worked. I complain bitterly about how little I am allowed to keep of every pound I earn, but I go on doing the work just the same."

This is not to underestimate the pronounced emotional reaction to high taxes which may in various intangible ways have its effect upon the work that is done. Less eager willingness to press through with a job may result in a gradual and unmeasurable slowdown and general

[12] *Cf.* the author's "Income Taxes, Wage Rates, and the Incentive to Supply Labor Services," *Nat. Tax Jour.*, Dec. 1953, VI, 333-52.

impairment of efficiency. Tax loopholes are exploited wherever possible, of course, and this may divert some productive energy to tax-free trips and other side activities. On the whole, however, there is no escaping the fact that, thus far at least, disincentives, like the weather, are much talked about, but relatively few people do anything about them.

With regard to the future, there are implicit in the evidence collected enough clues as to the conditions which make for the appearance or disappearance of tax disincentives to allow certain predictions to be made. A tendency toward larger families, for example, may be expected to reduce the disincentive influence of taxation. A higher divorce rate will have the same effect, especially for husbands who find themselves supporting more than one wife and family at the same time. Increased desires for labor-saving consumer durables will lower the impact of tax disincentives on husbands during the period of acquisition (which may well be a long one), and then as the wife finds herself with more and more time on her hands she, too, will move into the labor market, high tax rates to the contrary notwithstanding. Increased international communication and travel will stimulate the people of one country to wish for themselves the advantages they see enjoyed by "the Joneses" of another, and in so far as these things can be earned by harder work the disincentive force of taxation will be weakened. The pressures of an increasingly complex world will tend to reduce the freedom even of our professional people to respond to disincentives by drawing them more and more into partnerships or incorporated businesses (a large number of our respondents commented on the increasing difficulty even today for the lone general practitioner to continue on his own in the face of the growing complexity of legal and accounting work).

Government fiscal policies as well will have their influence on the ways in which income taxation affects work incentives. As the government expands its welfare programs—providing increased protection against unemployment or illness or injury, increased payments to the aged, etc.—it reduces the pressure of fixed commitments and increases the incidence of tax disincentives. Higher estate and inheritance taxes, on the other hand, will lower the level of property income enjoyed by heirs, and, as our collected evidence indicates, those with less property income tend to be less sensitive to income tax disincentives.

From the present evidence, then, we must conclude that contrary to the frequently repeated injunctions of so many financial commentators, solicitude for the state of work incentives does not under current conditions justify significant reductions in the role of progressive income taxation. Indeed, it would appear that, in the United States at least, income tax rates could be raised considerably, especially in the middle and upper-middle income ranges, without lowering unduly the aggregate supply of labor.

INVESTMENT POLICIES AND "DUALISM" IN UNDERDEVELOPED COUNTRIES

By ALBERT O. HIRSCHMAN*

Economists have not shown much interest in the tensions and conflicts that accompany economic development. Not unlike the Marxist who shrugs off revolutions as "birthpangs" of a new society, the economist has tended to consider social and cultural disruptions in underdeveloped countries as the inevitable by-product of growth. But just as the nature and course of a revolution profoundly affects the society that it brings forth, so is the course of a country's development intimately conditioned by the manifold tensions which it experiences during its struggle to break away from economic stagnation. Failure to include these conflicts in the empirical basis of our analytic structures may mean the loss of important insights. For instance, we persist in attempts to view the developmental process as a self-generating and self-sufficient activity moving along a smooth exponential path, when any observer of the reality of underdeveloped countries is fully aware of the ever-present dangers of abortive development and of the important ways in which progress and backwardness clash and interact.

This article is an attempt to build some of these interactions into the analysis of development. Its first two sections deal with the conflicting claims and uneven growth of different regions within an underdeveloped, but developing economy. After describing the principal methods of governments in coping with situations of this kind, we pass to consider economic problems of a country that has become split into a developed and an underdeveloped region. The last two sections deal with some structural consequences of the close cohabitation of progress and backwardness within the same country, first for the type of industrialization and then for the kind of industrial organization that are promoted and are likely to prove most effective in this particular environment.

I. *The Regional Distribution of Public Investment*

The regional distribution of public investment is the resultant of powerful forces acting on the policy-makers of underdeveloped

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countries.[1] Three principal patterns may be distinguished: dispersal, concentration on growing areas, and attempts to promote the development of backward areas.

In contrast to widespread impressions, the most pervasive tendency of governments of underdeveloped countries in making their investment decisions is not so much the obsession with one dam or one steel mill, as the dispersal of funds among a large number of small projects scattered widely over the national territory.

While this pattern is *dominant* only in countries where dynamic economic growth has not yet taken hold,[2] it can be said to exert a steady pull in practically all underdeveloped countries. The most obvious reason is that public investment decisions are easily the most political ones among the economic policy decisions taken by governments. Whether to build a road here rather than there, whether to construct a power plant that is to supply towns A, B, and C, rather than D, E, and F, these are questions that have decisive local political impact.

Thus, as all governments regardless of their democratic character desire and need support from all sections of the country, the temptation is strong to scatter the investment effort far and wide. Disconnected roads are built at many points, small Diesel power plants and aqueducts are installed in many towns without adequate provision for their maintenance; even low-cost housing programs which should obviously concentrate on relieving critical shortages and on slum clearance in the big cities, are often similarly dispersed.

More fundamentally, the tendency toward wide dispersal of investment funds may be due to the fact that some traditional societies can conceive economic progress only as a force that ought to affect equally all members and sections of the community. Such societies are therefore unprepared and unwilling to make the choices about priorities that are the essence of development programs. Experience with community development projects has shown that the belief or suspicion, however mistaken, that a project will lead to individual enrichment, may easily spell its failure.[3] Similarly, within the setting of a country, the feeling may be widespread that there is something wrong with even temporarily preferred treatment for some regions, a feeling that it might be politically dangerous not to take into account.

[1] For an attempt to account for economic policies of underdeveloped countries in other fields, see my "Economic Policy of Underdeveloped Countries," to be published in *Econ. Develop. and Cult. Change,* July 1957.

[2] See Benjamin Higgins, "Development Planning and the Economic Calculus," *Soc. Research,* Spring 1956, XXXII, 35-56.

[3] For a good example, see A. R. Holmberg, "The Wells That Failed: An Attempt to Establish a Stable Water Supply in Viru Valley, Peru," in *Human Problems and Technological Change,* E. H. Spicer, ed. (New York, 1952), pp. 113-23; also P. S. Taylor, "Can We Export the 'New Rural Society'?", *Rural Soc.,* Mar. 1954, XIX, 13-20.

Finally, the dispersal pattern can be explained by certain shortages usually affecting underdeveloped countries. The elaboration of the many small projects into which public investment is typically split up when this pattern is dominant, requires comparatively little engineering and planning talent, whereas the larger projects in electric power, transportation or basic industry require far more such talent than is usually available to the government. This is why entirely too much has been made of the argument that development is held back, not by the scarcity of funds, but by a scarcity of "bankable," *i.e.*, well-conceived and engineered, projects. The question which should come first, the project or the funds, is really of the chicken-egg variety. Obviously funds can be spent only on clearly defined projects. But without definite expectations that funds—from domestic or foreign sources—will be forthcoming, the considerable cost of engineering and economic studies and the administrative effort required to gather the necessary staff and to obtain the assistance of foreign consultants will most likely not be undertaken. The promise of foreign funds—provided the studies prove the project feasible and worth while—is particularly important if this effort is to be made, as a large project usually results in one region obtaining for the time being a substantial advantage over all others. This is an investment decision which the local government may find it difficult and imprudent to make unless it has the feeling—and the excuse vis-à-vis the other regions—that international development capital is not to be had at all on other terms.

Moreover, the study and preparation of a large-scale project implies in itself—especially in countries where there is the rhetorical tradition of confusing the word with the deed, and the announcement of plans with their realization—a commitment to the region which is going to be principally benefited. Governments are therefore reluctant to start such studies unless they feel reasonably sure that they will be able to "deliver." Unless they have assurances in this regard, they would be politically much better off to let sleeping projects lie.

The International Bank for Reconstruction and Development has often defended itself against charges of insufficient lending by the argument that there were not enough "bankable" projects available.[4] But in fact the Bank frequently has acted in accordance with the point of view just outlined, *i.e.*, it has helped in the preparation of such

[4] Statements to this effect can be found in several of the Bank's annual reports; *e.g.*: "Perhaps the most striking single lesson which the Bank has learned in the course of its operations is how limited is the capacity of the underdeveloped countries to absorb capital quickly for really productive purposes. . . . The Bank's experience to date indicates that the Bank now has or can readily acquire sufficient resources to help finance all the sound productive projects in its member countries that will be ready for financing in the next few years, that can appropriately be financed through repayable foreign loans and that cannot attract private capital." *Fourth Annual Report, 1948/49*, pp. 8, 13.

projects by virtually committing itself in advance to the financing of their foreign exchange costs, including even the cost of the preliminary engineering surveys.

In this way the availability of international development capital may make for a shift from dispersal of public investment toward concentration on a few key projects. The "demonstration effect" of similar projects undertaken in other countries also works in this direction.[5] But the most important force opposing the tendency toward excessive dispersal of public investment is the growth pattern characteristic of rapidly developing countries. Development often begins with the sudden, vigorous and nearly spontaneous growth of one or a few regions or urban centers resulting in serious shortages of electric power and water supply, as well as in housing and transportation bottlenecks. Thus, urgent demands for several types of capital-intensive public investments appear and must be given the highest priority whether or not they correspond to the government's sense of distributive justice and to its pattern of regional political preference. The public investment in overhead capital in turn makes possible further growth in industry and trade of the favored areas and this growth requires further large allocations of public investment to them.

Determined as it is by the volume of private investment and the general rise in income in the developing areas, public investment clearly plays here an "induced" role, and investment choices are often remarkably and unexpectedly obvious.[6] It is not always easy, however, to have these obvious choices adopted, partly because of the continuing desire of governments to revert to the policy of scatter, and partly because a new pressure soon makes itself felt, namely to accelerate development in the areas that have fallen behind.

A situation in which the bulk of public investment is continuously being sucked into the comparatively developed portions of the national territory cannot in the long run be considered satisfactory by governments, because of compelling equity considerations. In fact, the attempt to change drastically the distribution of public investment in favor of the country's poorer sections generally comes at a point that seems premature to the foreign observer or adviser for the simple reason that the more rapidly advancing sections do not strike *him* as so outstandingly prosperous. It is, however, quite understandable that the attempt should be made long before these sections have come anywhere near

[5] The demonstration effect is perhaps more important in raising the propensity to invest of public authorities than in increasing the propensity to consume of the public. The latter relation is stressed by R. Nurkse, *Problems of Capital Formation in Underdeveloped Countries* (Oxford, 1953), pp. 57f.

[6] *Cf.* my "Economics and Investment Planning—Reflections Based on Experience in Colombia" in *Investment Criteria and Economic Growth*, M. F. Millikan, ed., Mass. Inst. Tech. (Cambridge, 1955), pp. 35-54.

fully developing their potential. Moreover, the poorer sections of the country, where careers in industry and trade are not promising, often produce, for this very reason, a majority of the country's successful politicians and thereby acquire weighty spokesmen in the councils of government.

Whatever the correct timing, the channeling of large-scale capital expenditures toward the underprivileged areas of the country contains the danger of misguided and excessive investment—a danger which is always more present in a region that has not yet experienced real development than where spontaneous growth has already staked out fairly well the areas in which public investments are urgently required.

It is possible that the transition from the second pattern—concentration of public investment on spontaneously growing areas—to the third—attempt to ignite development in the heretofore stagnant areas through "autonomous" public investment—is facilitated by certain peculiar properties of public investment. Usually the second phase results not in a mere shift from scatter to concentration of a given investment total, but in a considerable enlargement of the total amount of funds required for public investment. These funds are secured through the introduction of new and higher taxes or through other *permanent* revenue-raising devices.

On the other hand, it is probably reasonable to assume that the need for the investment of public funds in the country's spontaneously growing areas is particularly heavy in the initial stages of development, as basic utilities are created and rapidly expanded. After development has proceeded for some time, the need for public investment in relation to private investment tends to decline and in any event an increased portion of public investment can be financed out of earnings of previous investments. This kind of change in the mix of public investment with private investment is implicit in the term "social *overhead* capital" often used to designate the kind of investments which are primarily financed by public funds.

As the taxation and other measures which have financed the original spurt in public investment continue to yield revenue, some funds may thus become, if not unemployed, at least less compellingly employed than previously. This is likely to be immediately sensed by the officials responsible for apportioning public investment and provides an excellent opportunity to those among them who would want to change its geographic composition in favor of the less developed sections.

II. *Divergent Development of Different Regions*

On probability grounds alone, economic growth is unlikely to start everywhere at the same time and to proceed everywhere at the same

speed within an economy. Once some areas and sectors have pulled ahead of others, they assert a powerful attraction not only for the simple reason that nothing succeeds like success, but also because external economies are coming into being at these "growing points." There can be little doubt that an economy, in the process of lifting itself to higher income levels, must first develop within itself some such regional centers of economic strength. Interregional inequality of growth is therefore an inevitable concomitant of growth itself.

To simplify our exposition, we shall call "North" the region or regions of the country which are experiencing growth and "South" those that have fallen behind. This terminology is suggested by the fact that a large number of backward areas appear to be located in the South of the countries to which they belong. The term "South" as used here does not include *un*developed—*i.e.*, largely unsettled—areas.

After the first spurts of growth in the North, it is no longer obvious what course development will take. Normally one might expect that little by little the higher incomes in the North will trickle down to the Southerners, either as a result of purchases and investments by the North in the South, or because of migration of Southerners to the North. But there are important instances of countries where the initial advance of a region has resulted in a North-South split which has shown considerable durability. Under what conditions is such a lasting split likely to emerge?

In the first place, it must be noted that the initial advance of the North, instead of spilling over to the South, may affect it adversely. If the North industrializes, some Southern handicraft industries may become depressed as a result of competition, and real incomes in the South may also fall as Northern manufactures, produced behind newly erected tariff walls, replace similar goods previously imported from abroad at lower prices. Moreover, the economic expansion of the North may attract only the more enterprising young men from the South as well as whatever capital is generated there.

Nevertheless, if the North specializes in manufactures and relies on the South for primary products, this sequence cannot continue for long. In view of the low supply-elasticity characteristic of the South, the increasing demand for foodstuffs and materials in the developing North will turn the terms of trade sharply against the latter.[7] In this way, either the advance of the North is going to be halted by rising labor and material costs, or the South is eventually going to be spurred

[7] This situation has been fully analyzed by H. G. Johnson for the case in which a developing industrial country trades with a stagnant agricultural country; see his "Economic Expansion and International Trade," *Manchester School Econ. Soc. Stud.*, May 1955, XXIII, 96-101. *Cf.* also W. A. Lewis, "Economic Development with Unlimited Supplies of Labour," *Manchester School*, May 1954, XXII, 173.

into becoming an efficient producer—in both cases, the gap between the two regions is likely to be narrowed or closed.

But what if the North possesses within itself a large and productive agricultural area or is able, as a result of expanding exports, to supply its needs in primary products from abroad? Under such circumstances, it is easy to see that the South could indeed remain in the backwater of subsistence agriculture, almost entirely cut off from any beneficial effects of economic progress in the North while it would remain exposed to the already noted adverse effect of factor mobility on its own manpower and capital resources.

Under these conditions—which are or were fairly typical of such backward regions as Brazil's Nordeste, Colombia's Oriente, and Italy's Mezzogiorno—the split of the country into a progressive and a depressed area could persist for a long time. Economic, as distinct from the already noted political, pressures to remedy the situation will arise only at a relatively late stage, usually when the expansion of Northern industries begins to be seriously hampered by the insufficient size of the home market or when balance-of-payments difficulties make the country realize that it would save foreign exchange by an improved use of Southern resources. Whenever such economic arguments can be combined with the already noted political forces working in the same direction, a determined effort to pull the South out of its stagnation is likely to be made.

The preceding analysis gives us a hint as to the kind of investment which is likely to yield the best results in the South. With the considerable advance of the North in manufacturing, the best chance for the South to break into the pattern of self-sufficient growth of the North lies probably in a major effort to improve its agriculture so as to become a supplier of agricultural raw materials and foodstuffs for the North. Agricultural resettlement, irrigation and drainage schemes, and the establishment of extension services are likely to be of particular importance in this endeavor to move away from subsistence agriculture. Other investments in North-South integration, *e.g.*, in education and in essential transportation links, are also likely to be highly beneficial.

On the other hand, large-scale investment in social overhead capital such as electric-power facilities, modern highway networks, and urban redevelopment may be ineffective in promoting economic growth in the South. Such investments should by all means be undertaken when there exists a reasonable degree of confidence that entrepreneurial initiative will manifest itself as soon as the resulting facilities become available. But in view of the long stagnation of the South, such confidence can hardly be justified. When development is not actually underway large-scale investments in overhead facilities are essentially equivalent to the

use of monetary policy in a depression: the availability of power and transportation facilities is of a purely permissive nature but it cannot by itself set development in motion, just as the availability of excess reserves at low interest rates to prospective borrowers does not of itself insure economic expansion at the bottom of a depression. The nature of public works spending in a stagnating underdeveloped area is thus fundamentally different from its role during a depression in an industrial country. The equivalent of the latter in an underdeveloped country is agricultural development or the outright establishment of state-owned industries, provided of course that their technical and economic feasibility has been studied and provision is made to administer them with some competence. In this sense, the Paz de Rio steel mill in Colombia's backward Oriente will probably turn out to be, in spite of initial difficulties and setbacks, an effective development move compared with any program to provide such an area with plentiful public utilities whose capacity might go begging for years.

III. *Economic Consequences of "Dualism" for Industrial Development*

The North-South split is nothing but a special aspect of the often noted "dual" character of underdeveloped countries where the hypermodern exists side by side with the traditional, not only in techniques of production and distribution, but also in attitudes and in ways of living and of doing business.

Probably one of the principal economic characteristics of these countries and more generally of any country where industrial development is incipient and spotty, is the existence of two distinct wage levels, one applicable to the industrial sector and the other to the nonindustrial and preindustrial sectors which comprise most of trade and other services (except banks and insurance companies) as well as handicraft and small-scale industry.

With mobility far from perfect, the dual wage level reflects different marginal productivities of labor in the modern and preindustrial sectors of the economy, but it is also explained by social security and minimum wage legislation which is usually enforced and enforceable only in the larger industrial units, by the high cost of living (particularly of housing) in the growing industrial cities, and by persistent preferences for the traditional and more independent pursuits in agriculture, small trade and small industry.

While labor is cheaper in the underdeveloped sector of the economy, capital is typically more expensive, also for a variety of reasons: access to the banks is difficult and interest charges are much higher, machinery, equipment and tools are bought at retail rather than imported directly from the foreign manufacturer at important savings, etc.

To illustrate what happens to industrial development in countries

under these conditions, a familiar diagrammatic technique may be employed.[8] The terms "North" and "South" will now not necessarily refer to geographically distinct areas, but to the industrial and preindustrial sectors of the economy which may be, and in fact often are, closely intermingled.

In Figure 1 the ordinate measures capital and the abscissa physical units of labor input. We assume two distinct wage and capital cost-levels and therefore the expenditures corresponding to identical labor and capital inputs differ from North to South. For the purpose of the argument, it is supposed that one homogenous good is to be produced and that two processes are available, the industrial one which is com-

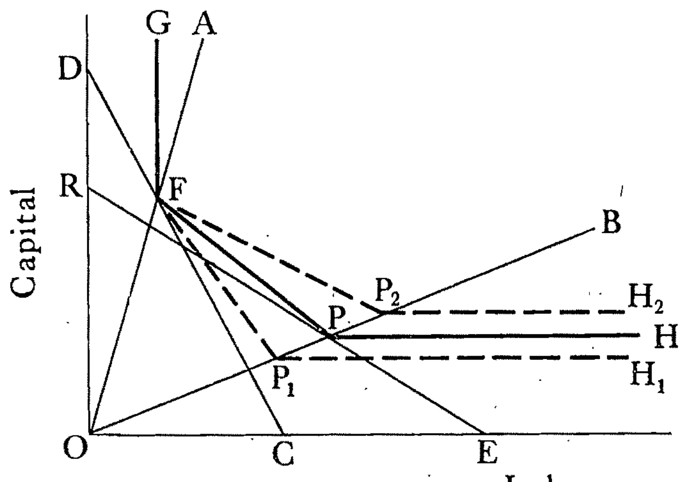

FIGURE 1

paratively capital-intensive and necessarily uses "expensive" labor and "cheap" capital, with the expansion path *OA*, and the labor-intensive preindustrial process which uses "cheap" labor and "expensive" capital and is shown by the expansion path *OB*. We shall now draw a constant-expenditure line for different combinations of labor and capital reflecting the dualistic situation we are describing. Let *DC* be such a line for the industrial process used in the North, and let labor in the North be twice as expensive as its Southern counterpart, while capital costs are, say, two-thirds of what they are in the South. Then we derive a corresponding constant-expenditure line *FE* for the preindustrial

[8] For recent applications to related problems, *cf.* R. S. Eckaus, "Factor Proportions in Underdeveloped Areas," *Am. Econ. Rev.*, Sept. 1955, XLV, 539-65, and Yale Brozen, "Entrepreneurship and Technological Change," in *Economic Development—Principles and Patterns*, H. F. Williamson and J. A. Buttrick, ed. (Englewood Cliffs, N.J., 1954), pp. 236-41.

process by making CE equal to OC and OR equal to twice the length of RD.

On these assumptions, any combination of labor and capital shown by points on lines DC and RE require the same expenditure, it being understood that line DC refers to Northern and line RE to Southern conditions. If the industrial process is used, it is possible to produce with this expenditure the quantity of output corresponding to OF and the same expenditure yields the output corresponding to OP in case the preindustrial process is used. Now, if production OF happens to be equal to production OP, in other words if the constant-product line is represented by $GFPH$, it is a matter of indifference whether the commodity in question is produced by the one or the other process. If on the other hand, the constant-product line going through F is correctly shown by GFP_1H_1, the preindustrial process is less expensive and will be adopted. On the other hand, if the constant product line is GFP_2H_2, then the labor-intensive process is more expensive for the same output than the industrial process and the latter will be used.

Of course, the neatness with which the diagram shows under what conditions the industrial process can or cannot compete with the preindustrial one, is blurred in the real world. As the Southern wage is ordinarily implicit and as Southerners will take considerable squeezing of their earnings before they actually stop production, the potential investor in modern industrial processes is not confronted with a point such as P against which he must successfully compete, but with a range of such points along the OB line. He must therefore be sure that he can out-compete the South not only on the basis of present prices, but even on the basis of prices that may be considerably lower.

Under such conditions, the industrial processes that have least to fear from the competition of the South are those which are entirely outside the technological and capital capabilities of the local handicraft and small workshop industries. These are the processes characteristic, for instance, of chemicals, petroleum refining, basic iron and steel, cement, pulp and paper, but also of many "modern" consumer goods, from radios and light bulbs to toothpaste and aspirin.

There is a second type of manufacturing that is liable to be introduced in countries characterized by dualism in the cost structure, namely industries turning out products similar to those of the preindustrial sector, but producing them with such superior efficiency and productivity that they are able to crush any competition from the old industries. The classical example here is, of course, the textile industry, particularly spinning.

Finally, we come to the industries where dualism is vindicated. Here the appearance of modern industrial methods is seriously handicapped

by the possibility of competition from independent, small-scale producers. Examples that come to mind are the manufacture of furniture, shoes, apparel, bricks, ceramics, cigars (as opposed to cigarettes), baskets (holding back the development of modern forms of wrapping, bagging and packaging), as well as large parts of the food-processing and construction industries. Most services, in particular retailing, also are in this category. In truck and bus transportation, the dual wage situation and the relatively small size of the needed capital investment make for organization along traditional small-business lines in preference to modern large-scale operations, and consequently the service provided has a distinctly preindustrial flavor in spite of the modern equipment used.

In all these sectors which jointly form a fairly substantial part of any economy, the advantages of modern industrial methods apparently are not decisive enough to overcome the traditional or small-scale way of doing things. The use of machinery is unable to offset the advantages of using Southern labor or would do so only at levels of output that are beyond the capacity of absorption of the economy.

The phenomenon which we have described may be an aspect of the factor proportions problem that has been overlooked. Much attention has been given by economists—though not much yet by engineers—to the question of adapting modern technology to countries where labor is cheap and plentiful and where the introduction of certain labor-saving (as opposed to capital-saving or product-improving) innovations may not be justified. While the search for evidence of such adaptation apparently has been somewhat disappointing, it would be wrong to conclude that differences in factor endowments and costs relative to those of industrial countries are not exerting profound effects on the pattern of development in underdeveloped countries. But these differences are perhaps more importantly reflected in the outright *absence* of modern methods from a number of branches of commerce and industry, than in the always difficult transformation of technical processes in those branches into which modern industry is moving.[9]

The absence of something is always a little hard to notice and this may explain why the one stressed here has not received the attention it deserves. Nevertheless, it is the partial character of industrial penetration into underdeveloped countries which is behind the pervasive impression of "dualism," *i.e.*, the feeling that the economic structure is a rather incongruous mixture of the new and the old—airplane and

[9] See, however, David Granick, "Economic Development and Productivity Analysis: The Case of Soviet Metalworking," *Quart. Jour. Econ.*, May 1957, LXXI, 205-33, for interesting evidence on the use of labor-intensive methods, principally in auxiliary operations such as materials handling, inspection and repair.

mule, oil refinery and basket weaving, gleaming modern office buildings and unsanitary food markets, etc. Whether or not they are geographically separate, these two sectors simply appear to coexist, each with its own standards of workmanship, efficiency, bargaining and human relations in general.

It has recently been contended that underdeveloped countries should give priority in their investment programs to capital-intensive industries with a highly advanced and complicated technology. By drawing on historical evidence, Gerschenkron has eloquently argued that only by establishing such industries will a country be able to generate the momentum it needs to break the fetters of the past,[10] while Galenson and Leibenstein have advocated this course on the ground that capital-intensive industries make for high profits and therefore for high reinvestible savings.[11]

Whatever the intrinsic merits of these somewhat paradoxical views, they are perhaps not needed to explain and defend the preference for capital-intensive lines of production which many industrializing countries have exhibited. Viewed in the light of our analysis, this preference can be justified on quite orthodox grounds even for a capital-poor and labor-rich economy. It would probably be wasteful for such an economy to invest its scarce capital resources in duplicating lines of production that are already being carried on, even though inefficiently. A better use for capital would almost certainly be in the establishment of new-product industries. But in such industries capital-output ratios are likely to be typically high whereas they tend to be comparatively low in industries that would produce goods and services similar to those turned out by existing small-scale operators.

In other words, the most efficient use of capital in underdeveloped countries is not in capital-intensive industries *qua* capital-intensive; it is in industries that open new product horizons for the economy and these industries are likely to be more capital-intensive than others with which the country can dispense for the time being because the needs served by them are satisfied by existing handicraft and cottage industries. Therefore, what looks like a puzzling preference for capital intensity on the part of capital-poor countries in effect turns out to be the incidental result of a perfectly commonsense way of *husbanding* capital.

With respect to this pattern of industrialization, today's underdevel-

[11] This is their principal thesis as exposed in "Investment Criteria, Productivity, and Economic Development," *Quart. Jour. Econ.*, Aug. 1955, LXIX, 343-70.

[10] Alexander Gerschenkron, "Economic Backwardness in Historical Perspective," in *The Progress of Underdeveloped Areas*, B. F. Hoselitz, ed. (Chicago, 1952), pp. 3-29.

oped countries enjoy a definite advantage over nations where modern manufacturing first developed. In the latter nations, as is well known, the industrial revolution introduced fundamental technological innovations into iron, textile and pottery manufacturing, with immediate adverse impacts on the well-diversified handicraft and small-scale industries that had previously supplied these products.[12] In today's underdeveloped countries, on the other hand, industrial progress can concentrate on a wide range of useful and desirable products that are entirely new to the economy. As a result, the traditional handicraft and cottage industries are given a valuable respite which can be utilized to improve the efficiency of their operations and the quality of their output.

It must be understood that if this opportunity is not taken advantage of, industrial methods will eventually infringe upon the handicraft sector. As the economy grows in size, industrial methods will reveal themselves superior to the preindustrial ones in more and more areas in spite of the dual-wage situation. But the absence of sharp competition by modern industry during the first stages of development should make it possible to save a strong handicraft and small workshop tradition where it exists. It is well known that small and inexpensive additions of capital equipment, made available at easy credit terms, and combined with technical education and cooperative marketing, may considerably improve the performance of these industries.[13] By providing them with a new margin of protection against encroachment by big industry, successful efforts in this direction would also make it possible progressively to reduce the wage gap. Clearly, this is a more promising approach than the always futile attempt to freeze existing situations through legislative action. For many countries, this approach also seems wiser, and may be even more efficient in setting the stage for unified development than a policy of letting "nature take its course," *i.e.*, passive resignation to the squeeze of many old trades and skills which so unreasonably refuse to die.

In conclusion: Dualism brings with it no doubt many social and psychological stresses, but it has some compensating advantages and represents in a way an attempt by the economy of an underdeveloped country to make the best of its resources during a transitional phase. While countries may be anxious to put this phase behind them, they ought to realize that in doing so they must not necessarily follow the path of those nations that industrialized in an earlier period.

[12] Cf., e.g., J. L. and B. Hammond, *The Rise of Modern Industry* (London, 1937), Pt. II.

[13] *Cf.* H. G. Aubrey, "Small Industry in Economic Development," *Soc. Research*, Sept. 1951, XVIII, 269-12. For encouraging evidence from Indonesia, see K. Nagaraja Rao, "Small Scale Industry and Economic Development in Indonesia," *Econ. Develop. and Cult. Change*, Jan. 1956, IV, 159-70.

IV. *Technology as an Aid to Management in the Modern Sector*

The preceding section has shown that the type of industrial development which takes place under conditions of dualism in today's underdeveloped countries holds out special opportunities of survival for small-scale industry. At the same time this survival and staying-power of the older, labor-intensive production and distribution methods are likely to influence the organization of the modern sector in several ways.

In a society where dualism prevails, operators in the modern sector will feel that they are manning an outpost where they are always in danger of being contaminated by the old and in many respects so much more pleasant ways of working and doing business. Examples of such contamination are frequent: the pasteurizing plant whose milk one is strongly recommended to boil thoroughly before drinking; the first-class hotel that three months after a triumphant opening, has become third-rate; the "supermarket" which slowly takes on again the familiar aspects of the much decried open-air affairs. To avoid such deterioration, modern industry will often feel that it has to maintain a fighting position and is likely to consider any modification of advanced technology in the labor-intensive direction as infiltration of the enemy.

This attitude may spring from a correct instinct. The advisability of adopting more labor-intensive processes is usually evaluated on the assumption that work and quality standards will not deteriorate. But for a number of reasons, the validity of this assumption is highly doubtful in underdeveloped countries.

The impact on labor efficiency of machine-paced as opposed to operator-paced operations first comes to mind here. It is certainly true that an untrained labor force is likely to perform incomparably better in machine-paced operations, not so much because of a tendency toward slacking when the machine does not compel the work, as because machine-paced operations provide for steadiness of pace and regular brief rest periods which the inexperienced self-paced worker has difficulty in observing.[14]

In addition, modern machinery and equipment have a more subtle influence in *inducing* efficiency at all levels of labor and management. With better and more modern machinery, all personnel experience a feeling of obligation to live up to the performance of the equipment just as better highways induce improved driving habits and modern

[14] *Cf.* U. S. Department of Labor, *Hours of Work and Output,* Bull. No. 917 (Washington, 1947). This bulletin reports on the differential effect on workers' productivity of increases in daily work-hours during wartime. One of its conclusions is (p. 11): "Where the workpace is controlled by the machine, thus affording the operator some brief rest periods while waiting for the machine to perform its operation, the increase in output is more nearly proportional to the increase in hours [than in operator-paced operations]."

sanitary facilities better habits of personal cleanliness and hygiene.

A closely related point is that the most modern, *i.e.*, the most capital-intensive, plants are at a considerable advantage in competing for that scarce article, namely the trained engineer and the skilled workman. The poor workman always complains about his tools, as the saying goes; but, conversely, the poorly equipped factories are always the ones that complain about their workers, and probably with good reason.

But the most important function of modern technology is as an aid to management in the performance of new, unfamiliar and perhaps somewhat uncongenial tasks. Cooperation in large organizations meets with special difficulties in underdeveloped countries.[15] By predetermining to a considerable extent what is to be done, where and at what point of time, the machines and the mechanical or chemical processes they perform reduce these difficulties immeasurably in comparison with a situation where work schedules depend exclusively on the convergence and coordination of many human wills and actions. The latter situation is characteristic of most administrative processes and this circumstance helps to explain why the performance of the political and administrative process is so defective in most underdeveloped countries, while achievements in large-scale manufacturing are often quite creditable. That industrial technology can be considered as an aid to management is also confirmed by the observation, frequently made in these countries, that efficiency is far higher in the plant- than in the office-operations of industrial firms.[16]

The productivity effects of technology have been so spectacular that this efficiency-enhancing property has gone largely unnoticed. Ever since Adam Smith, it has been realized that the division of labor induces mechanical inventions. But the inverse relationship also deserves to be stressed. The technical processes carried out by machinery provide factory operations with a basic structure and rhythm which in effect deal out functions and determine sequences. If it is correct, as Chester Barnard has said, that "processes of decision . . . are largely techniques for narrowing choice,"[17] then the use of modern technology

[15] The nature of these difficulties will be discussed in a paper now in preparation.

[16] United Nations, *Labor Productivity of the Cotton Textile Industry in Five Latin American Countries* (New York, 1951), *passim.*

[17] C. I. Barnard, *The Functions of the Executive* (Cambridge, 1938), p. 14. Note also the following description of assembly problems in M. E. Salveson, "On a Quantitative Method in Production Planning and Scheduling," *Econometrica,* Oct. 1952, XX, 562: "In an assembled commodity, if there are n component parts there will be theoretically $n!$ different sequences in which the parts can be assembled together. . . . In any real situation, it would be prohibitive to enumerate all of these different sequences and select the one which is optimum. . . . Instead an engineering type of analysis is used to select some one sequence of assembly according to which the assembly methods and tooling are laid out."

in manufacturing is one of the most powerful of such techniques.

The degree to which modern technology facilitates coordination, varies from one industry to another. In some industries, the technology consists of a basic process around which work falls into place almost naturally; examples are smelting, petroleum refining, cement, brewing and many others. In other industries, such as construction and much of metal working, as well as in most service industries, not only is individual work largely operator- rather than machine-paced, but work in general is not patterned around one or several key technical processes. As a result, sequences are far less rigidly compelled, it is impossible to identify any one process as central, and tasks are typically defined in terms of their *direct* contribution to the achievement of the goal—the final product—rather than in terms of the roles performed in different phases of the production process. In these "product-centered" industries technology makes therefore much less of a contribution to the coordination of efforts unless it succeeds, by organizing "flow," in imitating the conditions prevailing in the "process-centered" industries. Thus, the efficiency-enhancing and coordination-promoting property of modern technology tends to be much more pronounced in process-centered than in product-centered industries.[18]

It is possible to classify a plant (or industry) into one or the other category by asking the question whether it has a definite capacity.[19] If a positive answer can be given, as is the case with a blast furnace, a refinery, or a brewery, we have a process-centered situation: with a certain equipment, it ought to be possible to produce so many tons or gallons per day. In the product-centered industries, on the other hand, it is not possible to make this kind of statement: there is no such thing as a set capacity of a construction firm or of a repair shop. This test illuminates another aspect of the manner in which technology in process-centered industries acts as an aid to management: the rated capacity of the plant provides managers with a performance goal and an objective criterion of failure or success, provided demand is adequate. This is a very valuable mechanism in underdeveloped countries where competition is often not a sufficiently strong spur to good performance.[20]

[18] In the product-centered industries, the well-known human drive to complete a task once it has been started, helps to some extent in stimulating work performances; but this effect is clearly much weaker than that deriving from technology in process-centered industries.

[19] This test was suggested to me by Alan S. Manne.

[20] In the paper cited in footnote 6, I pointed out that underdeveloped countries experience particular difficulties in insuring effective maintenance of equipment and machinery and that they therefore are likely to do comparatively well in industries or technologies where maintenance is virtually compelled by technical characteristics, as is the case when non-maintenance carries extremely stiff penalties. For example, the descending order of per-

We conclude that there are various ways in which capital enhances the efficiency of management and therefore of labor[21] and that this *stimulating* function of capital is of particular importance in underdeveloped countries where modern manufacturing is surrounded on all sides by a preindustrial society with its own work habits and without experience in coordinating and directing large-scale organization.

That there exists a strong social need for this stimulating function is suggested by the fact that, in the absence of modern technology, it is frequently performed in cooperative work by other devices, such as singing.[22] A particularly striking example of the elaborate way in which the function is performed in a primitive society is given by Raymond Firth in his description of the role of ritual in canoe-building and net-making in Tikopia.[23] He shows in minute detail how "certain types of ritual make for conformity of the work to a time-schedule and so help to safeguard the task from miscalculation and inertia." The ritual acts not only as a "unifying factor for the assembly of labor" and as a "general stimulus to the productive process," but also as a specific guide in the course of this process since "the traditional sequence of rites of necessity involves a corresponding sequence of technical operations."[24]

Finally, Firth shows that "with similar environmental, technical and social conditions, work of this kind [*i.e.*, work involving cooperation in large-scale activities] is performed with less regularity, secures a smaller labor force and is integrated less effectively where it is not accompanied by such ritual." His conclusion is that the extra degree of capital intensity implicit in the time-consuming performance of ritual is fully justified since without it output would substantially decrease and deteriorate.[25]

The parallel is complete with the special stimulating role which

formance of air lines, railroads and highways in these countries seemed to be explainable by the decreasing degree of compulsion to maintain them that is characteristic of these three modes of transportation in the order cited. This point can now be seen to be a special illustration of the interaction between techniques and work performance which must be kept in mind in development planning.

[21] The close relationship between organizational and managerial skills on the one hand, and labor productivity on the other, has been shown by Frederick Harbison, "Entrepreneurial Organization as a Factor in Economic Development," *Quart. Jour. Econ.*, Aug. 1956, LXX, 364-79.

[22] Georges Friedmann, *Industrial Society* (Glencoe, 1955), pp. 157-59, and sources there cited. *Cf.* also C. J. Erasmus, "Cultural Structure and Process: The Occurrence and Disappearance of Reciprocal Farm Labor," *Southwestern Jour. of Anthropology*, Winter 1956, XII, 452.

[23] Raymond Firth, *Primitive Polynesian Economy* (London, 1939).

[24] *Ibid.*, pp. 183, 179, 125 and 181.

[25] *Ibid.*, pp. 182-84.

modern technology performs and which because of difficulties in co-operation and the inexperience in management is particularly needed in underdeveloped countries. Here also some additional capital intensity may sometimes be well worth while if it "safeguards the task from miscalculation and inertia" and prevents decay.

It may well be therefore that production functions are not the same for developed and underdeveloped countries even though the underlying technological possibilities are identical. The marginal rate of

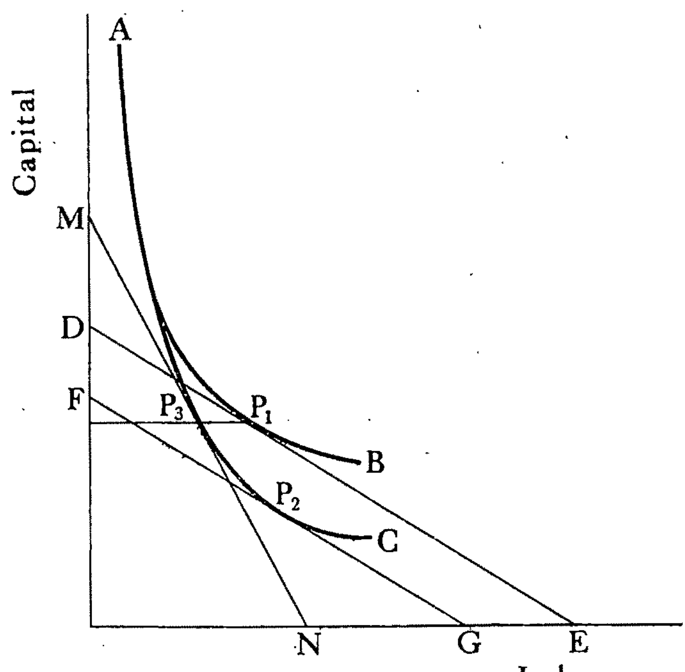

FIGURE 2

substitution of labor for capital is larger in underdeveloped countries as, with the loss in managerial and labor efficiency consequent upon the adoption of less capital-intensive methods, more labor is needed than in developed countries to make up for a given decrease in capital.

Using again the usual diagram, with labor and capital measured respectively along the abscissa and the ordinate, the constant-product curves for a given output of any good may be expected to coincide for industrial and underdeveloped countries only along their most capital-intensive segments. Thereafter the curves will follow different paths, with the isoquant of the underdeveloped country—curve AB in Figure 2—lying somewhat to the right of the isoquant AC that applies in the

industrial country. Only the latter is a genuine technical possibilities curve.

With this situation, it becomes immediately evident that identical relative factor prices in both countries should result in the adoption of more capital-intensive processes in the underdeveloped country than in the industrial one.[26] This is shown by comparing the points of tangency P_1 and P_2 of the two parallel lines DE and FG. Conversely and more realistically, if we assume that relative factor prices are less favorable to labor in the underdeveloped country, this does not necessarily mean that it should adopt less capital-intensive techniques than the industrial country. For instance, line MN reflects a higher ratio of labor costs to capital costs than line DE and yet, at their points of tangency P_3 and P_1 with the isoquants to which they belong, both ratios result in the same capital requirements.

Care should be taken not to read more into the preceding argument than it can bear. As stated at the outset, it applies only to the problem of appropriate factor proportions *within* the industrialized sector of the economy, not to the division between the industrial and preindustrial sectors, which was considered in Section III.

Secondly, with the low wage rates prevailing in some underdeveloped countries there remains the possibility that the limited choices which modern technology has to offer, are *all* too capital-intensive, even after taking into account the factors here discussed.

Thirdly, the argument has stressed above all the role of modern technology in determining the key production processes and in providing management with a guide to the basic breakdown of functions and sequences. There remains much room for labor-intensive operations on the periphery once they are fitted into the requirements of the central process. This applies, for instance, to materials-handling and internal transportation where, according to most observers, the variability in capital intensity from one country to another is greatest.[27]

Thus, our findings strengthen only moderately the case of the "capital-intensivists" in the current controversy about appropriate factor proportions in underdeveloped countries. Any practical usefulness our analysis can claim may rather lie in the investment criterion it contains. For if it is correct, then industrial planners in underdeveloped countries should see to it that the industries and techniques that are introduced are preferably those that induce minimum standards of performance on the part of labor and management. To disregard this

[26] Capital intensity is here understood to be measured by the capital-output, rather than by the capital-labor, ratio.

[27] *Cf.* Granick, *op. cit.*, and Seymour Melman, *Dynamic Factors in Industrial Productivity* (New York, 1956), Ch. III.

criterion might not result so much in additional labor requirements to make up for the loss of efficiency (this might rather be considered an advantage by the planner concerned with underemployment) as in speedy deterioration in the quality of output. Such deterioration could have a seriously demoralizing influence on the whole industrialization program.

There will of course be industries which do not rate highly from the point of view of our criterion, but whose establishment is nevertheless necessary or desirable on balance for a number of other reasons; repair facilities for machinery and vehicles are an example. It will nevertheless be useful to be aware of the special handicaps under which firms engaging in such activities are likely to operate, so that their management, personnel, and techniques may be selected with the appropriate safeguards.

Naturally, before any such practical applications, an empirical verification of our hypothesis should be undertaken. This might not be too difficult. If we are correct, labor productivity differentials between an underdeveloped and an industrial country should be much larger in certain industries (*e.g.*, metal fabricating) than in certain others (*e.g.*, cement) even when essentially similar techniques are used in both countries.[28]

Concluding Comments

This article has focused on a phenomenon that occurs constantly in the process of economic growth, namely the uneven course of progress of different industries and geographical areas within a country. It has been shown that the resulting split of a developing nation into advanced and traditional sectors may be of considerable width and duration and that this split may in turn affect the nature and direction of subsequent development. Tentative suggestions have been derived from the analysis for economic development policy in such matters as public

[28] It occurs to me that Leontief's celebrated findings about the comparatively high labor content of U. S. exports could be considered corroborative evidence (see his "Factor Proportions and the Structure of American Trade: Further Theoretical and Empirical Analysis," *Rev. Econ. Stat.*, Nov. 1956, XXXVIII, 386-407, and literature there cited). Conversely, Section IV of this paper provides an explanation of Leontief's statistics, related to the one he has proposed himself. I have suggested that it may be easier for underdeveloped countries to approach the efficiency standards of the advanced industrial nations in capital-intensive, process-centered, than in labor-intensive, product-centered industries. Therefore, as worldwide industrialization progresses, the comparative advantage of the advanced industrial countries may come to lie increasingly with certain types of labor-intensive goods and services. This can best be illustrated by a fanciful hypothesis. Let us imagine that certain labor-intensive services such as maintenance of roads, buildings and machinery, or the issuing of official permits, or the handling of personnel relations, could become objects of international trade at moderate transport costs. I have no doubt that in this eventuality the older industrial nations would specialize in the export of these services, quite possibly importing steel and cement in exchange.

investment in an underdeveloped country's own backward area, the role of small industry, and the type of technology appropriate for the modern sector of the economy.

Only passing mention was made of the social and political consequences of uneven development. However, serious dangers for a country's peaceful and democratic evolution are implicit in the numerous conflicts that are certain to arise from the cleavage between "North" and "South" and from the prolonged coexistence of modern industry with many traditional forms of production and distribution. On this score also, some value may attach to a more intimate understanding of the nature of these conflicts, of their probable course and possible resolution.

INFLATION IN UNDERDEVELOPED AREAS: A THEORETICAL ANALYSIS

By SAYRE P. SCHATZ*

Inflation is likely to plague the backward economy that attempts to develop. It occurs because economic development requires a level of capital formation that is difficult for most underdeveloped countries to finance by ordinary means. Investment undertaken by both private businessmen and government constitutes a demand for domestic output and/or resources. Even imports of capital goods involve an indirect demand for domestic resources to the extent that the imports are paid for with export proceeds rather than with funds from foreign loans or grants.

If inflation is to be avoided the economy must be willing to limit its consumption spending to the level of output that will remain after the investment demands are satisfied. Aside from foreign loans or grants, tax receipts plus voluntary private saving (*i.e.*, saving forthcoming at the ordinary distribution of income) must at least match government expenditures plus private investment. However, in the underdeveloped nation saving is usually meager and the government generally finds it difficult to collect sufficient funds to finance its activities. Consequently voluntary saving and tax proceeds are likely to be insufficient to prevent a rise in the price level. Inflation performs the task of supplementing voluntary saving with "forced saving"; it does so by reducing the real incomes, and hence consumption, of the less fortunate economic subjects.

Before presenting an exposition of certain distinctive characteristics of inflation in underdeveloped economies, thereby increasing the number of apparently divergent analyses of inflation, it may be useful to indicate what practically all analyses of the phenomenon have in common. A perusal of the literature reveals what appears to be a confusing variety of theoretical approaches. Besides the quantity-of-money approach there are two major branches of what may be called the supply-and-demand theory of inflation, in which changes in the price level are regarded as reflections of underlying alterations in the relation be-

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tween aggregate demand and aggregate supply. One of these is the Swedish branch, which distinguishes the factor and goods markets (each being regarded as of equal importance) and which assumes that inflation can arise in either of these markets.[1] The other is the Anglo-American branch, sired by Keynes,[2] which considers primarily the commodity market, the factor market entering the analysis only as a link in the chain of causation. Each of these approaches appears to have given rise to a welter of conflicting theories. There are a number of mathematical models that seem to contradict one another; in addition, there are innumerable more or less divergent literary expositions of inflation.[3] However, these apparently divergent explanations are merely descriptions of different *paths* that inflation may follow; underlying them all is the same general theory of the cause of inflation, its effect on income distribution, and the circumstances necessary to terminate inflation. This general theory can be distilled from the various presentations and stated simply and briefly.

Inflation occurs when the members of the economy among them try to acquire more output or resources than the economy can make available at a given time. In the consequent bidding for output or resources an upward spiral of commodity and resource prices ensues, each twist of the spiral having the same general cause, *i.e.*, the attempt to acquire more output or resources than the economy can supply. If the relative strength of the contending economic classes is not equal in the inflationary situation, the price rise will augment the real incomes of the stronger class(es) at the expense of the weaker.

The inflation will come to an end if the disparity between the demands for commodities and/or resources and the supplies is eliminated. Most analyses of inflation (particularly the rigorous ones) assume that output and resources are fixed in quantity. Given this assumption, and in the absence of credit curbs, price controls, or other circumstances exogenous to the spiral, the inflationary process will cease only if and when the process of inflation itself has decreased the real incomes and hence the real consumption plans of one or more groups of economic subjects, and/or has so thwarted the real resource-acquiring plans that these have been reduced, the total reduction being such that the mem-

[1] See, *e.g.*, B. Hansen, *A Study in the Theory of Inflation* (London, 1951).

[2] J. M. Keynes, *General Theory of Employment, Interest and Money* (New York, 1936), pp. 301 et seq., and *How to Pay for the War* (New York, 1940), pp. 61-67.

[3] One of the leading writers on the subject of inflation remarks: "The literature on the subject is now so extensive that only the specialist can hope to have more than a nodding acquaintance with it. Furthermore, it is not always apparent whether the constructions of those eight or nine authors who have provided rigorously formulated models are complementary or competitive." R. Turvey, "Some Aspects of the Theory of Inflation in a Closed Economy," *Econ. Jour.*, Sept. 1951, LXI, 531.

bers of the economy among them are no longer trying to acquire more output or resources than the economy can make available at that time. However if, as we believe is more appropriate for an analysis of a less developed economy, we dispense with the assumed constancy of resources and output, then the inflation can also be halted by means of an increase in the quantity of resources and/or production sufficient to close the gap between the demand for resources and/or goods and the supply.[4]

The present study is differentiated from other rigorous analyses of inflation[5] chiefly by its incorporation of the effects of resource flows into and consequent production increases in the monetary sector of the underdeveloped economy. Heretofore, the influences of output changes on inflation have been discussed only in rather general terms.[6] Other parameters that seem appropriate for a less developed country are also adopted.

I. *The Dual Economy Model of an Underdeveloped Nation*

In most underdeveloped nations one can see a more or less distinct division into a market sphere and a subsistence sphere.[7] This distin-

[4] A single integrated statement of the theory of inflation has also been presented by Turvey. His formulation, which is meant to state the general cause of inflation, is that "inflation is the process resulting from competition in attempting to maintain total real income, total real expenditure, and/or total real output at a level which has become physically impossible" (*ibid.*, pp. 534-35).

[5] See, *e.g.*, R. Turvey, *op. cit.*, and "Period Analysis and Inflation," *Economica,* Aug. 1949, XIV, 218-27; J. Duesenberry, "The Mechanics of Inflation," *Rev. Econ. Stat.*, May 1950, XXXII, 144-49; J. J. Polak, "On the Theory of Price Control," *Rev. Econ. Stat.*, Feb. 1945, XXVII, 10-16; A. Smithies, "The Behavior of Money National Income under Inflationary Conditions," *Quart. Jour. Econ.*, Nov. 1942, LVII, 113-28; T. Koopmans, "The Dynamics of Inflation," *Rev. Econ. Stat.*, May 1942, XXIV, 53-65. These studies do not analyze the effects of changes in output. B. Hansen, *op. cit.*, presents a rigorous analysis of inflation which incorporates changes in productivity, but he arrives at completely indefinite results in such a case: inflationary pressure may increase, decrease, remain the same, or the change may be such that one cannot say what has happened to inflationary pressure.

[6] In an interesting article which will be discussed in Section II, W. A. Lewis examines in a general way the effects on inflation in an underdeveloped economy of the use of disguised unemployed resources. ("Economic Development with Unlimited Supplies of Labor," *Manchester School Econ. Soc. Stud.*, May 1954, XXII, 139-91.) See also J. S. Duesenberry, "Economic Growth in the United States—Discussion," *Am. Econ. Rev.*, Proceedings, May 1952, XLII, 558-66.

[7] Speaking of this division of the national economy into two sectors in Asia, the authors of the United Nations' *Economic Bulletin for Asia and the Far East* (first quarter, 1951, p. 20) write: "It is not a differentiation merely between two sectors of an integrated economy, as would be the case if a similar distinction were made in the West. It is a distinction between two different economies, with limited points of contact between them." The dual nature of underdeveloped countries has been discussed from an economic point of view by J. H. Boeke, *Economics and Economic Policy of Dual Societies* (New York, 1953). Descriptions of the duality of most economically underdeveloped areas abound. See

guishing structural characteristic of the less developed area calls for a theoretical model which is different from the existing models of advanced economies. The economy of our hypothetical underdeveloped nation is conceived of as divided into two distinct sectors or economies, the market sector and the subsistence sector. These two sectors are abstractions corresponding in only a very rough way to the two real and contrasting social systems (Western-oriented and indigenous) found in most underdeveloped countries. Our division is based upon a functional distinction (the use or nonuse of a modern monetary system) rather than a spatial or cultural one. The market economy uses a modern monetary system and it encompasses all factors of production (regardless of geographical location or cultural environment) whose services or output are sold for market-sector money. The subsistence economy includes only that portion of the economic activity of the indigenous inhabitants which is for self-consumption or for limited exchange within the indigenous social sphere. While there are what Boeke calls "village markets" and "village money" in the subsistence sector, we may legitimately assume that these have no appreciable contact with the market sector.

Productive factors but not products can flow from one sector to the other. For example, in all underdeveloped economies the peasantry commonly sells primary products to the towns and cities. In our analysis such transactions are not conceived of as flows of *products* from the subsistence to the monetary sphere. Rather, if a peasant should begin to market some of his crop, by this act he is transferring some of his *resources* (his labor-power, land and implements) into the market sector. To the degree that the peasant still engages in self-contained economic activity, to that degree he also remains in the subsistence sector. Similarly, the persons who may sell their labor to a plantation or factory for part of the year and then return to the self-supporting life of the village would be considered partially in each sphere.[8]

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e.g., the descriptions of Latin America, the Middle East, and Asia and the Far East in United Nations, *Preliminary Report on the World Social Situation* (New York, 1952), Ch. 10, 11, 12 respectively, and of Africa in United Nations, *Enlargement of the Exchange Economy in Tropical Africa* (New York, 1954), pp. 1-4.

[8] The reason that the entrance of the indigenous producer into market relationships is considered a transfer of resources rather than a sale of goods or services lies in the nature of the flow. It is not merely a market-induced phenomenon; it is to a significant extent a socially induced change in the producer's way of life. While the root cause may be economic, the flow occurs in response to massive sociological as well as economic changes disturbing and transforming the underdeveloped nation. Because a movement of resources from one sphere to another is more readily recognized as a sociological phenomenon—only partially market-induced—while a sale of goods or services is ordinarily viewed as a purely market phenomenon, it seems useful to view the subsistence economy contribution to the market economy as a transfer of productive resources.

A more complete discussion of the present dual economy model can be found in my

The dual economy model is important for our analysis of inflation because it enables us to assume that there may occur a flow of resources from the subsistence to the market sector which would have a moderating effect on the underdeveloped economy's inflation.

We shall analyze three inflationary cases. In the first, we assume there is no entry of resources into the market economy from the subsistence economy; in the second we postulate a limited entry of resources into the market sector; both of these cases also assume that productivity remains constant. The third case postulates increasing productivity but no entry of resources from the subsistence sphere.

In the period analysis which follows, we begin all cases from a stationary equilibrium. The length of the period is the required production time for consumer goods. Thus, production of consumer goods takes one period and is completed by the end of the period in which the inputs are received. Income is received at the end of the period in which income-earning inputs are employed and is disposed of (or alternatively, determines spending) in the period after it is received. Output is sold to and received by the purchasers in the period after it has been produced. Periods are indicated by subscripts, the subscript t indicating the general period t; the subscript 0 indicates the base period.

The mode of price interpretation underlying our models is the classical one: in each period that price is established which equates quantities supplied and demanded. Excess demands or supplies cannot exist, but actual prices can differ from intended or expected prices.[9]

Our other assumptions can best be represented symbolically; the following symbols are used:

Y = national income;

$Y(W)$ = workers' income, and includes only income received in compensation for labor input;

$Y(E)$ = income of the entrepreneurial class, and this comprises all income other than labor income;

$C(W)$ = workers' expenditures on consumer goods;

$C(E)$ = entrepreneurial spending for consumer goods;

I = net investment;

article, "A Dual Economy Model of an Underdeveloped Country," *Soc. Research,* Winter 1956, XXXIII, 419-32, and in my unpublished doctoral dissertation, *Inflation and Economic Development: A Theoretical Analysis,* New School for Social Research, 1955.

[9] This is the "equilibrium method" as opposed to the "disequilibrium method" which assumes that sellers fix their prices at the beginning of each period and maintain them even if inadequate or excess demand appears. See, *e.g.,* E. Lindahl, *Studies in the Theory of Money and Capital* (London, 1939), pp. 60-69; W. J. Baumol, *Economic Dynamics: An Introduction* (New York, 1951), pp. 126-30; Hansen, *op. cit.,* pp. 25-35.

w = the proportion of net input, valued at equilibrium prices, consisting of labor; w is therefore also the proportion of equilibrium national income going to the workers.

The monetary magnitudes are always expressed in current prices.

We can now explain our other general assumptions. Total national income is divided between wages and entrepreneurial income,

$$(1) \qquad Y_t = Y(W)_t + Y(E)_t.$$

Workers spend all of their income after a lag of one period,

$$(2) \qquad C(W)_t = Y(W)_{t-1}.$$

The assumption that workers have an average and marginal propensity to consume of 1 seems plausible for an underdeveloped country, but it would be equally possible, without materially affecting any of the results, to use a marginal propensity to consume out of wages smaller than unity. We assume further that the entrepreneurs spend their entire equilibrium income (as is necessary in a stationary state) but that their marginal propensity to consume out of additions to money income is $q < 1$. Hence entrepreneurial consumption is:

$$(3) \qquad C(E)_t = C(E)_0 + q[Y(E)_{t-1} - Y(E)_0].$$

If the price level rises, the economic subjects try to augment their money incomes. We assume that the working class as a whole does not have the economic power to increase wage rates *pari passu* with the price level. All available evidence indicates that although some workers in underdeveloped economies—usually skilled workers in inflation-favored industries—do increase wage rates at least in full proportion to rises in the price level, most workers are unable to do so.[10] Thus, as the price level rises above the base-period level, we assume that base-period wage rates increase by the proportion x (where $0 < x < 1$) of the increase in the price level. For example, if x (which we call the wage-increase coefficient) should equal ½ and if prices should rise to, say, 30 per cent above the equilibrium level, wage rates would rise to 15 per cent above the equilibrium wage.

So that we may postulate a "pure" inflation, nonrestrictive monetary conditions are postulated, *i.e.*, spending plans are not modified because of inability to secure funds to finance them.

In all of our cases we assume that inflation is initiated by the appearance of a demand for capital goods sufficient ultimately to bring about the following "target production" of capital goods:

$$(4) \qquad \text{target production of capital goods} = zY_0,$$

[10] See, *e.g.*, E. M. Bernstein and I. G. Patel, "Inflation in Relation to Economic Development," *Internat. Mon. Fund Staff Papers*, Nov. 1952, II, 369-70, and A. R. Prest, *War Economics of Primary Producing Countries* (Cambridge, 1948), p. 296.

where $0 < z < 1$ and where Y_0 represents the real national income before inflation begins. However, since we are analyzing an underdeveloped economy which is just stirring out of a stationary torpor, we assume that real investment demand grows gradually.[11] We postulate an increase in investment demand sufficient to bring about the following pattern of capital-goods production: it begins in period 1; the target level is approached in equal steps; and target production is achieved only after T periods, *i.e.*, in period $t = T$. Thus, until $t = T$, production of capital goods (K) in any period is:

$$K_t = \frac{tz}{T} Y_0. \tag{5}$$

We assume that this increase in the rate of investment goods production is achieved with the minimum possible decrease in the output of other goods and with no waste or unnecessary delay.

Finally, we assume that resources available for market economy production are perfectly mobile in response to demand, so that the composition of production is congruent with the composition of demand.

II. *The No-Entry and Limited-Entry Cases*

In a two-sector economy such as we have postulated we can conceive of a spectrum of possibilities with respect to the entry of resources from the subsistence sector into the market sector. At one pole is a free-entry case in which all resources demanded in the market economy enter freely from the subsistence economy. In such a case there would be no inflation, and we will not analyze this possibility any further. At the opposite pole is a no-entry case in which we assume that no resources enter the market sphere from the subsistence sphere. The production of capital goods could increase in such a case only at the expense of a corresponding fall in the output of consumer goods, and inflation would be inevitable. Lying between these poles is a variety of limited-entry possibilities, in which some resources enter the market sector but not to an extent necessary to prevent inflation. The limited-entry case is the general one which covers various possible degrees of entry. The free-entry and no-entry cases represent its upper and lower limits. In this section we will analyze the no-entry and the limited-entry cases. There will be a specified degree of entry in the latter case, but it will serve to illustrate the general characteristics of any limited-entry case.[12]

[11] This gradual increase in capital goods production is more in line with the capabilities of an underdeveloped economy than the sudden rise to the target level which is postulated in all other rigorous analyses of inflation with which the writer is familiar.

[12] Because of its sociological rather than purely market orientation the rate of resource entry is deemed to be exogenously determined. The justification for this assumption was discussed in footnote 8.

In the no-entry case, productivity and the quantity of resources in the market economy remain constant, and therefore total output remains stationary. However, in the limited-entry case we assume that resources enter the market economy at a rate just sufficient to raise aggregate production (P) per period by $\frac{z}{T} Y_0$ so that

$$P_t = \left(1 + \frac{tz}{T}\right) Y_0. \tag{6}$$

This increase is equal to the postulated per-period increment in the output of capital goods.[13] Such an increase in total product is just enough to prevent the rise in the output of investment goods during the first phase of the process from requiring any contraction in consumer goods production. After period T, the periodic increment in total product is devoted to increasing the output of consumer goods, while capital goods production remains at its target level.

It has already been pointed out that inflation will occur in the no-entry case and we will see that, despite the increase in production, inflation is also inevitable in the limited-entry case.

A. *First Phase: Until $t = T$*

Inflation is initiated in the first phase by the postulated investment expenditure in both the no-entry and the limited-entry cases. As a matter of fact the first-phase inflations in both cases are accelerating.[14]

Even a single maintained increase in investment would set an inflationary spiral in motion. Such a spiral would work itself out as follows in the no-entry case: the initial appearance of investment causes an increase in the price level; the higher price level stimulates a rise in money wages although real wages fall; corresponding to the fall in real wages is a rise in real and money income of the entrepreneurs; real income thus shifts to those who save the fraction 1-q of the increments in their incomes. The labor and entrepreneurial incomes, above the amount saved, are then spent, inaugurating another twist in the inflationary spiral. However, since real income shifts to the savers, the inflationary spiral does not continue with the same force, and an equilibrium might be approached.

[13] While the postulated degree of resource entry could be different from the incremental rate of first-phase investment, such an assumption would complicate the analysis without adding anything of significance. The first phase analysis is only meant to be suggestive in any case. Since the more important second phase does not involve any continuing increase in investment, the magnitude of the exogenously determined rate of resource entry makes no analytical difference.

[14] The difference equations exactly depicting the first-phase inflation are derived in the Appendix, Section I.

Although equilibrium might be reached in the no-entry case after a *single maintained increase* in real investment demand, no equilibrium could be reached during the first phase of inflation because each successive period brings an additional inflationary impulse in the form of a further rise in real investment demand and a decrease in consumer goods output. Each impulse initiates a new inflationary spiral like the one just described, and each new spiral is superimposed upon all the previous inflationary spirals simultaneously working themselves out.

In the limited-entry case, the newly inducted resources which enable the economy to increase capital-goods output without decreasing consumer-goods production earn incomes which they largely spend for consumer goods. This raises aggregate consumption expenditures for a constant quantity of consumer goods and thereby initiates an inflationary spiral similar to but not as pronounced as the spiral in the no-entry case. Continuing and accelerating inflation is inevitable because the entry of resources in each period is associated with a new inflationary impulse (in the form of consumption spending by the new resources) which adds its impetus to all of the previous impulses.

B. *Second Phase: After $t = T$*

After the production of capital goods attains its target level in period $t = T$, the real demand for and output of capital goods stops increasing. The economy is therefore relieved of the necessity of digesting a new inflationary impulse in each period and the inflation becomes more moderate. In the second phase the economy needs merely to adjust to the already achieved target rate of output of capital goods.

The price-wage spiral carries over from the earlier phase. However, the inflation may be decelerating and equilibrium may eventually be attained if there is a sufficient shift to entrepreneurial income with a consequent increase in saving. This depends upon the magnitudes of the parameters. In the limited-entry case, the second-phase processes are complicated by the continuing entry of income-receiving resources. However, the fact that the entering resources enable an expansion of consumer goods production tends to dampen the inflation.

We first examine the no-entry case. Whether the milder inflation of the second phase is decelerating and approaches an equilibrium or is accelerating and explosive depends, it can be shown,[15] upon the following necessary and sufficient condition for stability:

$$wx + q(1 - wx) < 1 - z, \tag{7}$$

of which a literary interpretation can be given.

Since z is the proportion of national product consisting of capital goods, 1-z is the proportion of national product consisting of consumer

[15] See the Appendix, Section III.

goods. wx represents the proportion of inflation-induced increments in income[16] which become additional wages and which are then used to increase workers' consumption spending. $1\text{-}wx$ represents the proportion of inflationary increases in income which becomes additional entrepreneurial revenue; q indicates the entrepreneurial marginal propensity to consume; therefore $q(1\text{-}wx)$ is the proportion of inflationary increases in national income used for additional entrepreneurial consumption. Putting all of this together, the necessary and sufficient condition for stability can be stated as follows: the proportion of inflation-induced increments in income which is used for additional consumption spending must be smaller than the share of national product devoted to current production of consumer goods. If we call the proportion of inflation-induced increments in money income devoted to additional consumption expenditure the inflationary marginal propensity to consume, then the stability condition can be restated: the community's inflationary marginal propensity to consume must be less than the proportion of the nation's output devoted to the production of consumer goods.[17] When this condition holds, the proportion of the national income devoted to the purchase of consumer goods decreases in each succeeding period and approaches the proportion of national product consisting of consumer goods.[18]

This exposition of the necessary and sufficient condition for achieving price stability is more explicit than previous statements of stability conditions for inflation. Generally, it is said that explosive inflation will be avoided if there is a sufficient shift of income to the entrepreneurs (who constitute the thriftiest class) so that ultimately voluntary saving increases to parity with investment.[19] However, the present stability condition delineates the conditions necessary to bring about a sufficient income redistribution. The inequality itself being more detailed and explicit than a verbal exposition, delineates not only the effects of a community's inflationary marginal propensity to consume,

[16] An inflation-induced increment in income is defined as an increase in money income resulting from inflation. This is to be distinguished from increments in money income arising from other causes.

[17] Since the only increments in money income in the no-entry case are due to inflation, both formulations of the stability condition for this case can be rendered more simply by omitting the adjectives "inflationary" and "inflation-induced."

[18] Since the national product is constant in the no-entry case, $1\text{-}z$ also represents the proportion of the national product of the preceding period devoted to current production of consumer goods, *i.e.*, current production of consumer goods expressed as a proportion of the preceding period's total national product. This interpretation, seemingly cumbersome and useless, becomes significant when we compare the no-entry to the limited-entry case.

[19] This idea is concisely expressed in United Nations, *Inflationary and Deflationary Tendencies, 1946-1948* (Lake Success, N.Y., 1949), p. 7. See also Keynes, *How to Pay for the War*, *op. cit.*, pp. 61-67; Turvey, "Some Aspects of the Theory of Inflation in a Closed Economy," *op. cit.*, pp. 540-41; W. A. Lewis, *op. cit.*, p. 162.

but also the separate effects of the entrepreneurs' and workers' inflationary marginal propensities to consume[20] and of the redistribution of income between these two classes. In the no-entry case the inflationary marginal propensity to consume is the primary determinant of the speed, magnitude and duration of inflation.[21]

In the limited-entry case, it can be shown[22] that the necessary condition for stability is:

$$wx + q(1 - wx) < \frac{T + z + uz}{T + Tz + uz}, \tag{8}$$

the parameter u representing periods beyond the second phase initial period T.

Interpretation of this condition will enable us to make a significant comparison of the present case with the no-entry case. As in inequality (7), the left side of inequality (8) represents the community's inflationary marginal propensity to consume. The right side is (it is shown in the appendix)[23] the proportion of the national product of the preceding period devoted to current production of consumer goods, *i.e.*, the current output of consumption goods measured as a proportion of total output of the preceding period.

Now the stability condition for the present case and for the no-entry case can be stated identically. The community's inflationary marginal propensity to consume must be or become less than the proportion of the preceding period's total output which is devoted to current production of consumer goods, *i.e.*, less than current production of consumption goods expressed as a proportion of total production of the preceding period.[24]

[20] If the inflationary marginal propensity to consume of the workers should be something other than 1, *e.g.*, v, then the stability condition would be:

$$vwx + q(1 - wx) < 1 - z. \tag{7a}$$

[21] Appendix, Section III.

[22] Appendix, Section IV.

[23] Appendix, Section IV.

[24] It is, of course, not surprising that the stability condition of the general case (the limited-entry case) should also apply to one of its limits (the no-entry case). On the other hand, since the no-entry case deals with a more circumscribed situation, a narrower or more circumscribed stability condition is applicable to it which is *not* valid for the limited entry case. Each side of the stability condition can be reinterpreted as explained in footnote 17. The stability condition can then be expressed as follows for the no-entry but not for the limited-entry case: the community's monetary marginal propensity to consume must be less than the proportion of the total product consisting of consumer goods.

Assuming a proportional per-period increase of resources equal to g, the monetary marginal propensity to consume in the limited-entry case (as contrasted with the inflationary marginal propensity to consume) would be

$$\begin{aligned} \text{monetary } MPC &= wx(1 + g) + q[1 - wx(1 + g)] \\ &= wx + q(1 - wx) + (1 - g)qwx. \end{aligned} \tag{9}$$

It is greater than the inflationary marginal propensity to consume by the entire last term.

Since the stability condition for these two cases can be expressed in the same words, this might seem to indicate that the entry of resources has no effect on the inflation or on the probability of avoiding an explosive increase in the price level. However, for two reasons, there is a better chance that the inflation will be finite when there is at least a limited entry of resources.

First, the ratio of current consumer goods output to total output of the preceding period is higher in the limited-entry case than in the no-entry case, for production of consumer goods increases every period in the former case, while it is constant in the latter. Consequently, in any given period, the right side of the stability condition in the limited-entry case is larger than its no-entry counterpart, *ceteris paribus*.

More important, the right side of the limited-entry stability condition increases with each successive period and approaches one,[25] while in the no-entry case the right side is a constant. It is apparent that this proportion, which represents the ratio of consumer output to the preceding period's total output, should approach one: capital goods production is constant while consumer goods output is increasing; thus, as total output rises, the constant flow of capital goods becomes an ever smaller proportion of the total while the growing flow of consumption goods becomes an ever larger proportion. We can therefore restate the limited-entry stability condition in a form which, in comparison with inequality (7), makes it plain that the entry of resources enhances the probability of attaining stability:

$$wx + q(1 - wx) < 1. \tag{11}$$

These two points indicate that an inflationary marginal propensity to consume that might easily be large enough to generate an explosive price rise when there is no entry of resources might produce a dampened inflation when there is limited entry of resources. However, if the inflationary marginal propensity to consume is close to one, it may take a great many periods before the price level even starts to approach equilibrium in the limited-entry case, *i.e.*, manifests a decelerating rather than an accelerating tendency. This will occur only after the right side of the stability condition approaches one closely enough so that it exceeds the left.

Thus, assuming a constant rate of investment and given the infla-

[25] That is,

$$\lim_{u\to\infty} \frac{\dfrac{T}{u} + \dfrac{z}{u} + z}{\dfrac{T}{u} + \dfrac{Tz}{u} + z} = 1 \tag{10}$$

tionary marginal propensity to consume, free entry of resources prevents inflation altogether. At the opposite pole, no entry generates the most severe inflation, and if the inflationary marginal propensity to consume is high enough and the initiating action is large enough, the inflation may be infinite. Between these poles is the limited-entry case, and the greater the degree of entry the less severe is the inflation. Not only is there a greater probability that the inflation will be finite, but also, since a freer entry augments the right side of the limited-entry stability condition[26] and causes it to approach unity more rapidly (*i.e.*, decreases more rapidly the *proportion* of the national product devoted to capital goods production) it makes for an inflation of a shorter duration and lesser magnitude.

As our stability condition now stands, it applies to a case in which an autonomous increase in investment initiates inflation, and then the economy reacts with increases in money income and consumption. After the initiating increase, the production of capital goods remains constant. However, we can generalize the stability condition to include the case in which secondary investment is induced by the rise in income: the proportion of the inflation-induced increase in income devoted to additional spending (either for consumption or induced investment) must be or become less than the ratio of (1) current production of goods other than those going to satisfy the initiating demand, to (2) the total product of the preceding period, *i.e.*, must be or become less than total current output minus current output going to the initiating spenders, all divided by total product of the previous period.[27]

III. *Increasing Productivity Case*

In the limited-entry model production rises as a result of the entry of resources from outside the sector being analyzed. It will be informative to compare with this a situation in which output is increased by means of processes working themselves out within the market economy. Thus, in this case we assume that productivity within the market sector rises.

[26] This is demonstrated in the Appendix, Section IV.

[27] In a discussion of economic development by W. A. Lewis in the article already cited (which appeared after the ideas here had been completely worked out) we can isolate two inflationary models that are somewhat similar to situations discussed in this article. The major model resembles our limited-entry case, and although Lewis does not develop a precise stability condition, his conclusions are similar to ours. The minor model, in which capital goods output is raised to a higher (constant) level but in which the ultimate effect on aggregate production of the increased flow of capital goods is disregarded, resembles the second phase of our no-entry case. Here Lewis incorrectly asserts that the inflation-induced income redistribution will necessarily terminate the inflation; however, our no-entry stability condition demonstrates that the inflation may be explosive or dampened, depending upon the parametric magnitudes.

The increasing productivity might be achieved either with a constant quantity of resources or by means of additional resources created within the market economy. Given a constant quantity of resources, technical progress might improve the quality of the capital goods or other innovations may rationalize the organization of production. Production might also rise as labor gradually becomes more acclimated to the alien capitalistic economic climate, and therefore manifests greater diligence and discipline, heightened motivation, and more care and efficiency. Productivity might also be raised when, as a result of prior investment, the stock of capital within the market economy is augmented. Employment of larger quantities of capital will, of course, enable the market sector to expand production. (The incorporation into theory of the effects of a growing capital stock is, as is well known, the basic innovation of modern growth economics.)

In order to compare more easily the present case and the limited-entry case, we adopt here all the assumptions and parameters which govern the latter model except two. First, we assume that the increase in production is achieved through a rise in productivity (as explained above) rather than through the entry of subsistence-economy resources.[28] Second, we assume that there are two components in the wage rise: (1) wages increase in the same proportion as productivity, and (2) this total then increases by a proportion equal to the wage increase coefficient (x) times the proportional increase in the price level. Given this assumption about labor income, the wage bill behaves precisely as in the limited-entry case.

Since wage behavior is the same as in the limited-entry case and since all other assumptions are the same, the entire financial pattern of this case, including its stability condition, is identical with that of the limited-entry case. Thus, the effect on the price level of an increase in productivity is the same, under the conditions assumed, as that of an increase in resources. Both tend to moderate the inflation and lessen the chance of a runaway price spiral.

However, we must qualify this conclusion. The analytical identity of the two cases is based upon the assumption that the consumption behavior of each class and of the community in the increasing-productivity case is the same as in the limited-entry case. However, in the increasing-productivity case the community's marginal propensity to consume is likely to be lower and therefore the inflationary pressure less severe for two reasons. First, even with the same relative distribu-

[28] In the limited-entry case, and thus here too, production increases by a constant amount per period rather than a constant percentage. However, since a very small constant percentage increase does not diverge greatly from a very small absolute increase, the simplifying assumption we have adopted may be taken to represent a close approximation to a constant percentage increase.

tion as in the limited-entry case, the per capita real income is higher, and therefore saving is likely to be greater. Second, when national product increases through a rise in productivity, the resulting distribution of income is likely to be more favorable to the entrepreneurs than in the limited-entry case, for there is likely to be a shift of income towards the entrepreneurs who accumulate the capital or introduce the productivity-increasing innovations, and this in turn is likely to increase savings.

IV. *Conclusion*

We have examined the two basic determinants of inflation: changes in expenditure and changes in production. We have dealt with the former by following the contours of existing theory, but have adopted assumptions which seem plausible for an underdeveloped rather than an advanced economy. We have dealt with the latter by integrating (in our limited-entry and increasing-productivity cases) a rigorous treatment of the effects of resource entry into the market economy or the expansion of production by other means. An explicit recognition of the possibility and effects of production increases is necessary in any analysis of inflation, and is particularly important in an examination of a backward but developing economy. In such an economy, our analysis has shown, the existence of a nonmarket source of resources for the market economy (or of other potential means of raising output) is likely to moderate the inflation that usually accompanies development. As a matter of fact, to the extent to which the inflationary pressure may induce a greater entry of resources, *ceteris paribus*, the inflation would be partially self-correcting and would have the positive effect of increasing aggregate production and hastening development.

APPENDIX

The difference equations depicting the first and second phase inflationary processes in both the no-entry and limited-entry cases and then the stability conditions and certain other properties of these cases are derived here.

I. *The Inflationary Processes: First Phase (Before $t=T$)*

The appearance of investment during the first phase disturbs the initial equilibrium (during which the national income had consisted solely of consumption expenditures) and national income becomes:

$$Y_{t+1} = C(W)_{t+1} + C(E)_{t+1} + I_{t+1}. \tag{12}$$

Substituting for $C(W)$ and $C(E)$ in accordance with equations (2) and (3), we get

$$Y_{t+1} = (1-q)Y(W)_t + C(E)_0 + qY_t - qY(E)_0 + I_{t+1}. \tag{13}$$

It is now necessary to substitute for $Y(W)$ and I. Since the ratio of investment to total spending or income equals the ratio of capital-goods output to total output, in the no-entry case:

$$\text{(14)} \qquad \frac{I_{t+1}}{Y_{t+1}} = \frac{\dfrac{(t+1)z}{T} Y_0}{Y_0} .$$

$$I_{t+1} = \frac{(t+1)z}{T} Y_{t+1}$$

and in the limited-entry case:

$$\text{(15)} \qquad \frac{I_{t+1}}{Y_{t+1}} = \frac{\dfrac{(t+1)z}{T} Y_0}{\left(1 + \dfrac{(t+1)z}{T}\right) Y_0}$$

$$I_{t+1} = \frac{(t+1)z}{T + (t+1)z} Y_{t+1}.$$

We have assumed that the wage rate rises by the proportion x of the proportional increase in the price level. The price level (PL) in any period expressed as a ratio to the initial price level is, in the no-entry case:

$$\text{(16)} \qquad PL_t = \frac{Y_t}{P_t} = \frac{Y_t}{Y_0},$$

while in the limited-entry case, it is:

$$\text{(17)} \qquad PL_t = \frac{Y_t}{P_t} = \frac{Y_t}{\left(1 + \dfrac{tz}{T}\right) Y_0} .$$

Therefore in the no-entry case:

$$\text{(18)} \qquad Y(W)_t = Y(W)_0 \left[1 + x\left(\frac{Y_t}{Y_0} - 1\right)\right];$$

and since $Y(W)_0 = wY_0$,

$$\text{(19)} \qquad Y(W)_t = wY_0\left(1 + x\frac{Y_t}{Y_0} - x\right).$$

In the limited-entry case, $Y(W)$ depends both upon the rise in wage rates and the increase in the quantity of labor. Since productivity is constant, the

quantity of resources increases in the same proportion as production. Therefore labor input (L) in the limited-entry case is

$$L_t = \frac{tz}{T}L_0 + L_0 = \left(1 + \frac{tz}{T}\right)wY_0, \text{ and} \tag{20}$$

$$Y(W_t) = \left[\left(1 + \frac{tz}{T}\right)wY_0\right]\left[1 + x\left\{\frac{Y_t}{\left(1 + \frac{tz}{T}\right)Y_0} - 1\right\}\right]. \tag{21}$$

Substituting for I_{t+1} and $Y(W)_{t+1}$ in equation (13), we get, in the no-entry case,

$$\begin{aligned} Y_{t+1} = {} & (1 - q)wY_0\left(1 + x\frac{Y_t}{Y_0} - x\right) + C(E)_0 - qY(E)_0 + qY_t \\ & + \frac{(t + 1)z}{T}Y_{t+1}. \end{aligned} \tag{22}$$

Solving for Y_{t+1} and simplifying, we arrive at the following difference equation:

$$\begin{aligned} Y_{t+1} = \frac{T}{T - (t + 1)z} & [w(1 - q - x + qx)Y_0 + C(E)_0 - qY(E)_0 \\ & + (q + wx - qwx)Y_t] \end{aligned} \tag{23}$$

where Y_0, $C(E)_0$ and $Y(E)_0$ are initial equilibrium constants. In the limited-entry case, we get:

$$\begin{aligned} Y_{t+1} = {} & (1 - q)\left(1 + \frac{(t + 1)z}{T}\right)\left[\left(1 + \frac{tz}{T}\right)wY_0\right] \\ & \cdot\left[1 + x\frac{Y_t}{\left(1 + \frac{tz}{T}\right)Y_0} - x\right] \\ & + \left(1 + \frac{(t + 1)z}{T}\right)qY_t + C(E)_0 - qY(E)_0. \end{aligned} \tag{24}$$

Solving for Y_{t+1} and simplifying, we arrive at the following difference equation for the limited-entry case:

$$\begin{aligned} Y_{t+1} = \frac{T + (t + 1)z}{T} & \left[\left(1 + \frac{tz}{T}\right)w(1 - q - x + qx)Y_0 + C(E)_0\right. \\ & \left. - qY(E)_0 + (q + wx - qwx)Y_t\right] \end{aligned} \tag{25}$$

where Y_0, $C(E)_0$ and $Y(E)_0$ are initial equilibrium constants.

These difference equations embody and depict (for the no-entry and limited-entry cases respectively) the process of money-income expansion during the first phase of the inflationary processes. The solutions of these difference equations, which yield the actual paths of the income increases, may be written as follows:[29]

$$Y_t = \pi A_{t-1}\left[\frac{B_{t-1}}{\pi A_{t-1}} + \frac{B_{t-2}}{\pi A_{t-2}} + \cdots + \frac{B_0}{A_0} + Y_0\right]$$

where $\pi A_t = A_t A_{t-1} A_{t-2} \cdots A_0$ and where A_t and B_t represent the following terms: in the no-entry case,

A_t represents

$$\frac{T}{T-(t+1)z}(q + wx - qwx)$$

and B_t represents

$$\frac{T}{T-(t+1)z}\left[w(1-q-x+qx)Y_0 + C(E)_0 - qY(E)_0\right];$$

in the limited-entry case,

A_t represents

$$\frac{T+(t+1)z}{T}(q + wx - qwx)$$

and B_t represents

$$\frac{T+(t+1)z}{T}\left[\left(1+\frac{tz}{T}\right)w(1-q-x+qx)Y_0 + C(E)_0 - qY(E)_0\right].$$

II. *The Inflationary Processes: Second Phase (After $t=T$)*

We rewrite equation (13) with appropriate subscripts as follows:

$$(13A)\quad Y_{T+u+1} = Y(W)_{T+u}(1-q) + C(E)_{T+q}Y_{T+u} - qY(E)_T + I_{T+u+1}$$

where T represents the second-phase base period and subsequent periods are represented by the parameter u.

Again we substitute for $Y(W)$ and I. In both cases the expressions representing $Y(W)$ in the first phase (equations 19 and 21) remain unchanged in

[29] We solve the difference equations by letting A_t and B_t represent the terms indicated in the text and then putting the equations into the typical form of linear difference equations of the first order. This is:

$$(26)\qquad \begin{cases} Y_{t+1} - A_t Y_t = B_t \\ Y_0 = Y_0 \end{cases}$$

See George Boole, *A Treatise on the Calculus of Finite Differences*, 3rd ed. (New York, no date listed), p. 161, equation 14. Following Boole, p. 164, the solution may then be written as in the text.

the second phase except for appropriate subscript changes. In both cases, I reflects a constant output of capital goods at the target level (equation 4) multiplied by the current price levels (equations 16 and 17). Thus in the no-entry and limited-entry cases respectively:

$$I_{T+u+1} = zY_{T+u+1}, \text{ and} \tag{27}$$

$$I_{T+u+1} = z\frac{Y_{T+u+1}}{\left[1+\dfrac{(T+u+1)z}{T}\right]}. \tag{28}$$

Substituting for I and $Y(W)$ in equation 13A we get in the no-entry case:

$$\begin{aligned} Y_{T+u+1} = {} & (1-q)wY_0\left(1+x\frac{Y_{T+u}}{Y_0}-x\right)+C(E)_T+qY_{T+u} \\ & - qY(E)_T + zY_{T+u+1}. \end{aligned} \tag{29}$$

Routine algebraic simplification then gives the following difference equation for the no-entry case:

$$\begin{aligned} Y_{T+u+1} = \frac{1}{1-z}\,[& w(1-q-x+qx)Y_0 + C(E)_T - qY(E)_T \\ & + (q+wx-qwx)]Y_{T+u} \end{aligned} \tag{30}$$

where Y_T, $Y(E)_T$, $C(E)_T$ are constants derived from the first-phase difference equation and Y_0 is an initial equilibrium constant.

Letting F represent

$$\frac{w(1-q-x+qx)Y_0+C(E)_T-qY(E)_T}{1-z}$$

and G represent

$$\frac{q+wx-qwx}{1-z}$$

equation 30 can be rewritten:

$$Y_{T+u+1} = F + GY_{T+u}. \tag{30A}$$

Substituting for $Y(W)$ and I in the limited-entry case, we get

$$\begin{aligned} Y_{T+u+1} = {} & \left[\left(1+\frac{(T+u)z}{T}\right)wY_0\right]\left[1+x\frac{Y_{T+u}}{\left(1+\dfrac{(T+u)z}{T}\right)Y_0}-x\right] \\ & (1-q)+C(E)_T+qY_{T+u}-qY(E)_T \\ & +z\frac{Y_{T+u+1}}{\left(1+\dfrac{(T+u+1)z}{T}\right)}. \end{aligned} \tag{31}$$

Simplifying, we get the following difference equation for the limited-entry case:

$$Y_{T+u+1} = \left(1 + \frac{Tz}{T + uz + z}\right)\left[\left(1 + \frac{Tz + uz}{T}\right) w(1 - q - x + qx) Y_0 + C(E)_T - qY(E)_T\right] \tag{32}$$
$$+ \left[1 + \frac{Tz}{T + uz + z}\right](q + wx - qwx) Y_{T+u}$$

where Y_T, $Y(E)_T$ and $C(E)_T$ are constants derived from the first-phase difference equation, and Y_0 is an initial equilibrium constant.

III. *Properties of the No-Entry Case*

The *speed of inflation* is shown by the difference equation itself. If $G<1$, the inflation is decelerating; if $G>1$, the inflation is accelerating, and anything which increases F or G steepens the climb of the price level.

The *magnitude of the inflation* is indicated by the equilibrium level of national income $[Y(Eq)]$, *i.e.*, the level which, if reached, repeats itself in the succeeding period and which consequently recurs in all subsequent periods. We find $Y(Eq)$ by substituting it for Y_{T+u} and Y_{T+u+1} in equation 30A.

$$\begin{aligned} Y(Eq) &= F + GY(Eq) \\ &= \frac{F}{1 - G}. \end{aligned} \tag{33}$$

In terms of the original parameters, this equation is:

$$Y(Eq) = \frac{w(1 - q - x + qx)Y_0 + C(E)_T - qY(E)_T}{1 - z - wx + qwx - q}. \tag{33A}$$

The *path of the inflation* can be found by solving the difference equation, which gives the value of Y in any period after period T, and knowing this, it is only necessary to divide by Y_0 to depict the price level. The solution of the difference equation is

$$Y_{T+u} = Y(Eq) - G^u[Y(Eq) - Y_T]. \tag{34}$$

Inspection of equation 34 reveals that the necessary and sufficient condition for stability is $O<G<1$.

Since w, x, q and z are all positive and <1, both the numerator and denominator of G are positive and therefore G must be positive. Then the stability condition can be restated:

$$\frac{q + wx - qwx}{1 - z} < 1 \tag{35}$$

or

$$wx + q(1 - wx) < 1 - z. \tag{35A}$$

IV. *Properties of the Limited-Entry Case*

The solution to the limited-entry case second phase difference equation (equation 32) can be written [30] as in the first phase:

$$Y_{T+u} = \pi A_{T+u-1}\left[\frac{B_{T+u-1}}{\pi A_{T+u-1}} + \frac{B_{T+u-2}}{\pi A_{T+u-2}} + \cdots + \frac{B_0}{A_0} + Y_0\right] \tag{25}$$

where we let B_{T+u} represent:

$$\left(1 + \frac{Tz}{T + uz + z}\right)\left[\left(1 + \frac{Tz + uz}{T}\right) w(1 - q - x + qx)Y_0 + C(E)_T - qY(E)_T\right]$$

and A_{T+u} represent

$$\left(1 + \frac{Tz}{T + uz + z}\right)(q + wx - qwx).$$

This solution shows the value of Y in any period, *i.e.*, the course of the income increase.

Given the value of Y, the price level in any period and thus the *path of the inflation* is represented by rewriting equation 17 when $t = T+u$, *i.e.*,

$$PL_{T+u} = \frac{Y_{T+u}}{\left[\frac{(T + u)z}{T} + 1\right]Y_0} = \frac{TY_{T+u}}{(Tz + zu + T)Y_0}. \tag{17A}$$

The amount by which the price level index increases in any period is

$$PL\Delta_{(T+u+1)-(T+u)} = \frac{Y_{T+u+1}}{\left(1 + \frac{(T + u + 1)z}{T}\right)Y_0} - \frac{Y_{T+u}}{\left(1 + \frac{(T + u)z}{T}\right)Y_0}. \tag{36}$$

Substituting for Y_{T+u+1} and Y_{T+u} according to equation 26 and simplifying somewhat, we get

$$PL\Delta_{(T+u+1)-(T+u)} = \frac{1 + \frac{(T + u)z}{T} B_{T+u} + \pi A_{T+u-1}\left[\frac{B_{T+u-1}}{\pi A_{T+u-1}} + \frac{B_{T+u-2}}{\pi A_{T+u-2}} + \cdots + \frac{B_0}{A_0} + Y_0\right]\left[\left(1 + \frac{(T + u)z}{T}\right)A_{T+u} - \left(1 + \frac{(T + u)z + z}{T}\right)\right]}{\left(1 + \frac{(T + u)z + z}{T}\right)\left(1 + \frac{(T + u)z}{T}\right)Y_0}. \tag{37}$$

[30] *Ibid.*, pp. 161-64.

We can now determine the *stability condition* for this phase of inflation. If the increases in the price level become smaller and finally tend to stop altogether, the second-phase inflation is a dampening rather than an explosive one. This would be indicated by equation 37; if the change in price becomes zero or negative, the inflation has stopped. The denominator of the right side of equation 37 is necessarily positive, for every term in it is by definition positive. Therefore, in order for equation 37 to become negative, it is necessary for the numerator to become negative, and this in turn requires that the second term in the numerator become negative and have a larger absolute value than the positive value of the first term of the numerator. The first bracket of the second expression is necessarily positive, for both A_{T+u} and B_{T+u} are positive for any values of u. This can be seen as follows: in A_{T+u} every expression is obviously positive by inspection; in B_{T+u} the only negative term is $-qY(E)_T$, but this must be less then the positive term $C(E)_T$, for our definition of the entrepreneurial marginal propensity to consume shows that $C(E)$ in any period equals $qY(E)$ in that period *plus* the constant $(1-q)(1-w)Y_0$. Consequently, in order for the entire second term (which is ever growing in absolute magnitude) to become negative, it is necessary that the last bracket become negative. Both of the expressions in the last bracket are positive because every parameter contained in them is positive. Therefore, it is necessary that ultimately (as u increases) the second term in the last bracket become larger than the first. Consequently, the necessary condition for stability[31] is that ultimately (as u increases) the following inequality must hold:

$$\left[1 + \frac{(T+u)z + z}{T}\right] > \left[1 + \frac{(T+u)z}{T}\right] A_{T+u}. \tag{38}$$

Replacing A_{T+u} with its original value, and simplifying, this inequality can be put into the form used in the text:

$$wx + q(1 - wx) < \frac{T + z + uz}{T + Tz + uz}. \tag{38A}$$

That the right side of this inequality represents (as was stated in the text) the current output of consumption goods measured as a proportion of total output of the preceding period can be shown as follows: production in period $T+u$ is (as shown by equation 6 with appropriate changes in subscripts):

$$P_{T+u} = \left[\frac{(T+u)z}{T} + 1\right] Y_0 \tag{6a}$$

and production in period $T+u+1$ is:

$$P_{T+u+1} = \left[\frac{(T+u+1)z}{T} + 1\right] Y_0. \tag{6b}$$

[31] Unlike the no-entry case, where it was feasible to state the necessary and sufficient conditions for stability, in the limited-entry case the sufficient condition would be too complicated, and so only the necessary conditions are demonstrated.

Of total final output in period $T+u+1$, the amount zY_0 is in the form of capital goods and the rest consists of consumption goods. Consequently, in period $T+u+1$, the proportion of period $T+u$ output devoted to the production of consumer goods (R) is

$$(39)\qquad \frac{R_{T+u+1}}{P_{T+u}} = \frac{\left[\dfrac{(T+u+1)z}{T} + 1 - z\right]Y_0}{\left[\dfrac{(T+u)z}{T}\right]Y_0} = \frac{T+z+uz}{T+Tz+uz}.$$

That freer entry of resources and hence larger increments in production would enlarge the right side of the limited-entry stability condition, as is asserted in the text, is easily seen as follows: a larger production increase would increase the differential between P_{T+u} and P_{T+u+1}. Equation 39 could therefore be rewritten

$$(39a)\qquad \frac{R_{T+u+1}}{P_{T+u}} = \frac{\left[\dfrac{(T+u+1)z}{T} + 1 - z\right]Y_0 + H}{\left[\dfrac{(T+u)z}{T}\right]Y_0} = \frac{T+z+uz}{T+Tz+uz} + J$$

where H represents the increment in consumer-goods production as a result of the greater entry of resources or increase in productivity and J represents

$$\frac{H}{\left[\dfrac{(T+u)z}{T}\right]Y_0}.$$

FACTOR PROPORTIONS IN JAPANESE ECONOMIC DEVELOPMENT

By GUSTAV RANIS*

This paper is intended to demonstrate the importance of optimal factor utilization for a developing economy. The choice of production methods—along with the composition of final demand—determines an economy's capital-output ratio. Such a choice has added significance in the context of the labor-surplus underdeveloped area where a seemingly negligible dissipation of capital may be equivalent to a substantial loss of productive capacity. The experience of Japan illustrates the importance of the ability to squeeze the most out of the fund of savings painfully conserved at each stage of development.

Japanese factor prices prescribed movement along the most labor-intensive production functions which could be devised during the early (nineteenth century) stage of her development. There was no wholesale adoption of the advanced techniques elsewhere perfected and now available to her. After the turn of the century, however, changes in the relative supplies of the factors exerted pressure for the re-equipment of Japanese industry and the type of secular growth with which the advanced economy is familiar.

I. *Labor-Intensive Phase, 1868-1895*

At the time of the Restoration (1868) Japan bore characteristics not generally unfamiliar to the underdeveloped area: dense population coupled with low levels of capital accumulation. Moreover, during the early phase of her growth, to about 1895, the factor labor was increasing at a faster rate than the factor capital, thus intensifying the initial relative scarcity of the latter.

The population had been stagnant at a level of approximately 28 million during the two pre-Restoration centuries; as we might expect, it experienced sharp increases with the beginnings of developmental activity. The participation of this growing population in the labor force, as indicated in Table I, increased till 1895, and fell steadily

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thereafter. Increases in man-hours as a result of the increased availability of marginal work-hours for productive purposes, though not quantifiable, were undoubtedly also of great importance. Though encountering physical limits at some point, both these factors are of much greater immediate significance in determining the size of the available labor force than the lagged population changes.

With development, a large proportion of the so-called "disguised unemployed" were drawn into productive activity. It would not be accurate, however, to label this a physical movement of labor to factory and city. The peasant was attached to the soil and found it easier

TABLE I.—WORKING POPULATION AND PARTICIPATION RATE

Year	Primary[a] (million)	Secondary[b] (million)	Tertiary[c] (million)	Total (million)	Total Population[d] (million)	Participation Rate (per cent)
1878–82	16.1	1.1	2.4	19.5	35.9	54.3
1883–87	16.8	1.6	2.9	21.2	37.9	56.0
1888–92	17.2	2.0	3.4	22.6	40.4	56.0
1893–97	17.4	2.5	4.0	23.8	42.3	56.2
1898–02	17.3	2.9	4.5	24.8	44.9	55.2
1903–07	17.0	3.4	5.2	25.6	47.5	54.0
1908–12	16.5	3.9	5.8	26.2	51.0	51.4
1913–17	15.7	4.4	6.5	26.5	54.9	48.3
1918–22	14.9	4.6	7.6	27.1	58.0	46.7
1923–27	14.8	4.9	8.8	28.4	60.6	46.9
1928–32	14.8	4.9	9.6	29.3	64.2	45.7
1933–37	14.7	6.0	10.1	30.8	69.3	44.5

[a] Including agriculture, forestry and fishing.
[b] Including manufacturing and mining.
[c] Including services and government.
[d] Yuzo Yamada, *Nippon Kokumin Shotoku Suikei Shiryo* (Estimated Japanese National Income) (Tokyo, 1951), pp. 152–53.
Source: Worksheets at the Economic Research Institute at Hitotsubashi University.

to contribute a portion of his day to a new pursuit in relatively familiar surroundings. The presence of a culturally immobile labor force resulted in the rural location of many industries. In weaving, for example, the feudal putting-out system on the household level was streamlined and expanded. Different families might be employed for handling the various stages of a given process in traditional silk, lacquer and pottery industry. Agricultural by-employment assumed major significance; between 1868 and 1900, 30 per cent of all farmers were engaged in seri-culture. Even cotton spinning requiring heavier machinery and factory supervision was widely dispersed in order to accommodate a labor force drawn largely from the ranks of young peasant daughters. This type of labor was willing to come into the

spinning mills on a short-term basis—if rural conditions could be partially recreated through the paternalism of dormitory life. Nevertheless, recruiters were necessary to convince the parents of the merits of factory life and, incidentally, promise them periodic remittance of earnings; the final step often took the form of an advance to the hard-pressed peasant on the security of the future wages of his offspring. Caught between tenancy and the heavy burdens of the fiscal system, few heads of rural families were in a position to resist such offers.

1. *Relative Factor Prices*

For our purposes, the most important consequence of labor's attachment to the soil was its influence on the level of industrial wages. Textiles, and light industry generally,[1] really represented an extension of agriculture, with wage levels tied to the low remuneration on the land. The persistence of such a wage structure during the first thirty years of a major developmental effort is to be explained partly by the market supply situation, and partly by the unequal distribution of bargaining power.[2] Workers themselves condemned "labor leaders as ruffians, unions as trouble-making organizations";[3] they agreed to "accept the wage rates decided by . . . the employers," and to bring "no opposition in case of a wage reduction."[4]

Remuneration seems to have been set at some narrow placement-cost differential above local subsistence.[5] Table II illustrates the movement of real wages as well as of the cost of physical capital goods over time. Increases in the latter during the early phases of a developmental effort are not surprising. Of greater interest are the relative factor-

[1] Representing more than 80 per cent of total contribution to national income within industry during the nineteenth century (my figures).

[2] "The idea of belonging together of family, clan and state which found in Emperor worship its metaphysical and in the absolute subordination to the communal purpose its political expression, made the tie between employer and employee . . . a very intimate one." E. A. Heber, *Japanische Industriearbeit. Eine wirtschaftliche und kulturhistorische Studie* (Jena, 1912), p. 250.

[3] Harada Shiomi, *Labor Conditions in Japan* (New York, 1928), p. 222.

[4] *Ibid.*, p. 235.

[5] This going wage differed with local differences in the total remuneration on the soil. Labor recruiters found their task easier in the poorer inland regions than in the maritime provinces where fishing and other forms of by-employment raised the opportunity cost of labor. This market, moreover, had interesting discriminating monopsony-buyer, competitive-seller, characteristics. The over-all supply curve of labor might be characterized by a step function consisting of a series of perfectly elastic segments rather than the commonly assumed horizontal curve at a given (subsistence plus placement costs) wage rate. The dispersion of the industrial labor force in small workshops and insulated dormitories helped employers to strike separate bargains and thus absorb the entire "rent" of the worker.

TABLE II.—RELATIVE FACTOR PRICES

	Capital Goods Price Index[a] (1928–32=100)	General Wholesale Price Index[c] (1928–32=100)	Capital Goods Price Index Deflated by the General Price Index (1928–32=100)	Money Wage Index[d] (1928–32=100)	Cost of Living Index[e] (1928–32=100)	Real Wage Index (1928–32=100)	Ratio of Capital Goods Price to Money Wage Index	Ratio of Real Capital Goods Price to Real Wage Index
1887	29.5[b]	32.2	91.6	11	—	—	2.68	—
1888–92	33.4	37.1	90.1	12	—	—	2.78	—
1893–97	43.7	41.7	105.0	14	32.8	42.7	3.13	2.46
1898–02	59.1	53.1	110.1	18	44.1	40.8	3.28	2.70
1903–07	63.8	63.5	100.4	19	50.5	37.6	3.35	2.64
1908–12	65.0	68.5	95.0	27	55.8	48.4	2.41	1.96
1913–17	89.9	81.2	110.7	29	60.4	48.0	3.10	2.31
1918–22	170.2	150.4	113.0	74	119.3	62.0	2.30	1.82
1923–27	148.1	139.6	106.0	108	118.3	91.3	1.37	1.16
1928–32	100.0	100.0	100.0	100	100.0	100.0	1.00	1.00
1933–37	100.1	107.4	93.2	93	98.8	94.1	1.08	.99

[a] *Hompo Keizai Tokei* (Economic Statistics of the Bank of Japan), annual. Also see Shozaburo Fushino, *Senzen Ni Okeru Shihonjikeisiki* (Capital Accumulation in Japan in the Prewar Period), (Tokyo, 1955), Appendix II. Converted from an October 1900 base.

[b] Available from 1887 only.

[c] As developed by Ohkawa at Hitotsubashi University.

[d] Yuzo Yamada, *Nippon Kokumin Shotoku Suikei Shiryo*, *op. cit.*, p. 154.

[e] Tsutomu Noda, "Meiji Iko Seikei Shisu No Suikei" (An Estimate of Cost of Living Indices in Japan, 1893–1954), *Econ. Rev.*, Apr. 1955, VI, 10. Converted from a 1934–36 base.

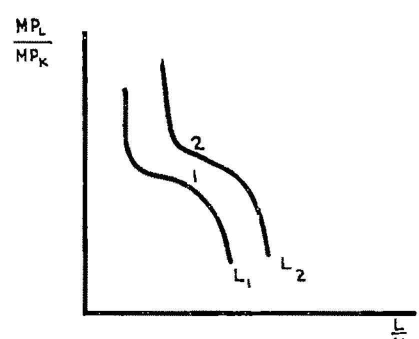
price changes here recorded; they indicate an increasing "relative scarcity" of capital during the nineteenth century—and a clear reversal of that trend thereafter.

2. *Capital-Saving Adjustments*

In 1868, Japan had just emerged from two centuries of self-imposed isolation. She found herself in a position to choose freely from among the many technological possibilities perfected in the West. Given her particular factor endowment and capabilities, it was to be expected, as a first approximation, that production functions absorbing proportionately more labor would be adopted. If technological flexibility, however, extends no further than to the adoption of the most labor-intensive known processes, a sizable share of the available labor force is likely to continue to be redundant. In fact, new combinations did emerge in Japan in response to the pressures of a radically different factor endowment.[6] This meant that, over time, the elasticity of substitution between labor and capital did not decline markedly.[7] The initial labor surplus, re-enforced by changes at the margin (and possibly raising similar anticipations as to the future) exerted pressure in favor of more capital-saving methods of production.[8]

[6] It is not always obvious whether such combinations represent shifts along Western-built production functions or the invention of a new species. It is clear, however, that "the way of direct imitation of Western methods . . . was gradually improved, so as to digest them in such a way as to make them fully conform to Japanese actualities and unite them with the strong points of . . . techniques produced by the originality of the Japanese." Japan, Ministry of Agriculture and Forestry, *Short History of Agricultural Development in Japan* (Tokyo, 1952), p. 46. See also Kamakichi Takahashi, in "Problems of the Pacific," *Proceedings of the Sixth Conference of the Institute of Pacific Relations* (Chicago, 1937), p. 265.

[7] In other words, as we move down and to the right in the accompanying diagram, the elasticity of L_1 does not fall very much. At what point the nonspectacular discovery of new ways of substituting along old production functions approaches a capital-saving innovation is of only theoretical interest—revolving around the difference between Schumpeter's "adaptive" and "creative" response. In our diagram the first alternative could be depicted in the very shape of L_1, the second by a falling elasticity along L_1 which is, however, rescued by a shift from L_1 to L_2. For any given labor-capital ratio, the innovation shifts the elasticity of substitution upward, say from 1 to 2; it increases the marginal productivity of labor more than that of capital.



[8] Spectacularly cost-reducing methods in the opposite direction may theoretically, of course, be adopted in such a situation. To say that in the underdeveloped area "labor-

The survival of old-fashioned production functions—to produce the new as well as the old—is of considerable importance in this context. In the textile industry we have the classic example of the economically rational coexistence, side by side, of different historical stages of production. Raw silk and cotton weaving are outstanding, but even in the quite mechanized factory-style spinning industry preparatory and finishing processes were, to a large extent, carried out at the cottage level.[9] This rather remarkable survival of domestic industry must be explained largely in terms of complementarity between the small, labor-intensive operating unit and the large industrial concern. The traditional *tonya* or merchant middleman, now a representative of the subcontracting unit, served as supplier and market for the goods to be worked up domestically.[10] Working hours not otherwise available could be mobilized in this manner. A specialization of function as between workshops, even as between the members of a given family, developed.[11] One-roof economies were achieved by using cheap labor in cooperation with old-fashioned machinery at the workshop level; economies of scale were achieved in the financing, purchasing and merchandising stages.[12] The integration of industry into the rural way of life substantially lowered both the real and social costs of industrialization.

As Veblen pointed out in relation to Japan, the imposing costs of technological development can be avoided by adoption of the latest machinery developed by others.[13] Nevertheless, major benefits

displacing investment would almost never be accepted, no matter how high its contribution to national product" (Harvey Leibenstein and Walter Galenson, "Investment Criteria, Productivity, and Economic Development," *Quart. Jour. Econ.*, Aug. 1955, LXIX, 349), is to be unnecessarily extreme.

[9] Lacquer, pottery, porcelain, sake brewing and fish-canning should be mentioned. Even more significant, the production of such new consumer goods as bicycles, electric lamps and rubber was to exhibit the same characteristics. The continued relative importance of this household type of enterprise is remarkable. Cottage-style industry contributed more than two-thirds of industrial national income in 1878, almost 60 per cent still in 1895, declining only as we move into the 20th century. (See the author's *Japan: A Case Study in Development*, unpublished doctoral dissertation, Yale University, 1956, Table 10A, p. 110.)

[10] "A brush manufacturer of Osaka . . . told me . . . that the brushes were sent to a thousand homes in country districts, in order that the bristles might be fastened into them." *London Times*, Suppl., July 1, 1910, p. 53.

[11] "Sometimes even a single part is not completed in one shop or home, but is shaped in one and painted or plated in another." H. G. Aubrey, "Small Industry in Economic Development," *Soc. Research*, Sept. 1951, XVIII, 283.

[12] G. C. Allen in *The Industrialization of Japan and Manchukuo, 1930-1940*, E. B. Schumpeter, ed. (New York, 1940), p. 624. See also Teijiro Uyeda and Assoc., *The Small Industries of Japan* (New York, 1938), p. 29.

[13] Thorstein Veblen, "The Opportunity of Japan" in *Essays in our Changing Order* (New York, 1934) pp. 248-66. S. C. Gilfillian (*The Sociology of Invention* [Chicago,

accrued to Japan not so much from the adoption of known technology as from a refusal to do so indiscriminately. The pervading, if unspectacular, feature of Japan's post-Restoration textile industry, for example, lay in the retention of traditional, relatively primitive, machinery in many areas. Imported or domestically "grown" improvements, partly of an organizational nature, were grafted onto existing handicraft-oriented industrial arrangements.

The capital-saving or elasticity-of-substitution-raising nature of such "retrogressive innovations" is evident. Increasing amounts of unskilled surplus labor could be deployed along familiar, but improving, production functions. At the same time, the industrial equipment on hand at the time of the Restoration did not represent a form of economically outmoded capital which, in line with familiar propositions, might act as a deterrent to innovation. The ability to make efficient use of traditional plant and equipment was equivalent to enhancing the socially available capital fund.[14]

Perhaps the most convincing evidence that the persistence of cottage-style manufacturing was an economic necessity and not the irrational survival of an outmoded practice was its virtual absence in the cotton spinning industry. In the case of the spinning wheel—unlike that of the loom—the margin of efficiency of the new over the old was large enough to swamp the effects of cheap labor and render factory production economically viable. In cotton spinning—as well as in other cottage-style light industry—the latest production methods available to Japan were adopted; and subsequently ways were found to increase plant flexibility by widening existing boundaries of the technical coefficients in order to accommodate larger amounts of labor per unit of output.

A good example is the running of Western-built machinery at accelerated rates—two work shifts daily[15] with but two or three rest days a month. This means that the average work week per machine was about two and one-fifths times that encountered in the country of origin. Using a machine twice as fast does not wear it out twice as fast since physical depreciation depends partly on the simple passage of time. More importantly, since pure physical depreciation can be considered to be the junior partner of the depreciation-plus-obsolescence

1934], p. 96) found that an average of 50 years elapses between the initial serious work on an invention and its considerable commercial use. The expenses of fundamental research, education, industrial trial and error, etc. can only be guessed at.

[14] "Japanese . . . do not replace their machinery as readily by new ones . . .; they are interested in keeping the machinery efficient and in adding modern appliances." Arno Pearse, *The Cotton Industry of Japan and China* (Manchester, Eng., 1929), p. 77.

[15] Made possible by the introduction of the kerosene lamp.

combination, the heavy employment of machinery means that the time gap between the physical and the economic life span of a machine is considerably narrowed. This represents a considerable saving in capital.

There is other, if less spectacular, evidence of successful attempts to adapt larger amounts of labor to the capital stock in the factory sector of light industry. One man and five to six women were used to service machinery which had never employed more than one man and three women in Europe.[16] The availability of cheap labor made it economical to run the machinery at greater speeds and put more hands to the preparatory auxiliary tasks. The increasing substitution of cheaper short-staple raw cotton from India for the stronger American variety resulted from the availability of extra woman labor to repair the inevitable broken threads.

TABLE III.—THE SPINNING INDUSTRY IN BOTH PHASES OF JAPAN'S ECONOMIC DEVELOPMENT

Year (Average annual)	Capital[a] (Average working spindles per day)	Labor[a] (Opera-tives, male and female)	Output[a] (Kan per day)	Capital-Labor Ratio	Capital-Output Ratio	Output-Labor Ratio
1886–90	128,989	5,997	6,600	21.5	19.5	1.10
1891–95	391,087	29,518	33,600	13.4	11.6	1.15
1896–1900	960,577	57,857	85,700	16.6	11.3	1.48
1901–05	1,296,471	66,840	103,800	19.6	12.5	1.57
1906–10	1,613,390	80,852	133,000	20.0	12.1	1.65
1911–15	2,331,272	109,228	204,300	21.3	11.4	1.87
1916–21	3,618,503	150,568	261,500	24.0	13.8	1.74
1920–24[b]	4,120,918	184,287	282,000	22.4	14.6	1.53
1925–29[b]	5,514,794	204,586	341,600	27.0	16.2	1.67

[a] *Nippon Teikoku Tokei Nenkan* (The Japan Annual Statistical Report) Nos. 11–42, Japan Cabinet Stat. Bur., Tokyo.

[b] The coverage for these two five-year periods is not exactly as above and the figures are therefore not entirely comparable. We thought it useful to include them, with this cautionary note, however, since the previous series was discontinued in 1921 and a continued view of the trend in the 1920's has considerable value.

In this fashion the limits of technical substitutability were widened. By capital-saving adaptation or innovation, the elasticity of substitution was prevented from falling as much as it otherwise might have. The results of Table III bear this out for the case of the spinning industry for which adequate data are available. During phase 1 the

[16] Heber, *op. cit.*, p. 165. In weaving, the Toyoda automatic loom, one of the few indigenous Japanese inventions, provides another example. Subsequently manufactured by Platt's of Oldham under a Japanese patent—in an example of the reverse flow of know-how—it was advertised to require 30 girls per loom in England; fifty girls had always been used in Japan.

ability to make the kind of everyday intraplant "rearrangement" we have been discussing resulted in falling capital-labor and capital-output ratios, the latter continuing to decline even after the former ratio had reversed itself. Output per worker was increasing with declining capital-intensities and a falling capital-output ratio.

3. *Changes in the Composition of Output.* The over-all capital-output ratio is, of course, not a purely technological ratio; nor is the total elasticity of substitution between labor and capital strictly a function of technical flexibility within given plants. Shifts in the composition of demand for final goods in the domestic market and, in the open economy, the elasticities of demand abroad materially affect the ability of a given stock of capital to absorb labor efficiently. Long after the boundaries of technological substitution have been reached,[17] consumer substitution, in the form of relative increases in the demand for labor-intensive goods, may take place.[18]

It is quite impossible to completely "hold the line" against mounting pressures of domestic demand during the developmental process. If Engel's Law is operative, as can be realistically assumed, increases in demand resulting from population growth and increased consumption per capita will be directed mainly towards the essentials produced by agriculture and the textile industry. Limited increases in consumption at near-subsistence levels of income do not, of course, necessarily represent a total loss to the nation's productive capacity. Such increases may well enhance people's ability and willingness to work. But, should the new demands be directed towards labor-intensive goods, the capital costs are undoubtedly smaller. Compared with the capital-intensive channels such demands might have taken, the elasticity of substitution stands to benefit—if only in a relative sense.

Real advances in specialization along labor-intensive production functions were made possible through the foreign-trade medium. Raw silk production, Japan's primary agricultural by-product, financed more than 30 per cent of Japanese imports during the nineteenth century. In this industry almost the entire value added can be ascribed to labor;[19] foreign-exchange requirements for capital or raw-material imports are virtually nil.

Japan's conquest of Western silk and Far Eastern cotton textile markets is more or less common knowledge. Her goods were becoming

[17] Even if coefficients are fixed, as long as they are not everywhere identical.

[18] If, as a consequence of resulting income growth, the size of the capital stock has also been increased, a new range of technological substitution possibilities may, of course, again become available. This is true, even if the new capital is devoted exclusively to "widening" because of the organizational advantages which may accrue.

[19] *London Times,* July 19, 1910, p. 8.

increasingly competitive, especially in the lower-quality markets of Asia to which she had easy geographic and cultural access.[20] In Table IV commodity exports are shown as a percentage of gross domestic output and as a percentage of output in industry only.[21] Exports clearly absorbed a large and growing share of total industrial output during the nineteenth century. This fact is especially striking when we recognize that exports had to start from a near-zero base in 1868. Integration into the world economy raised the total elasticity of substitution by permitting significant changes in total industry mix; more capital-

TABLE IV.—DOMESTIC PRODUCTION AND EXPORTS

Year (Annual average)	Commodity Exports[a] (Current mil. yen)	Domestic Gross Output of Commodities (Primary plus Secondary Sector)[b] (Cur. mil. yen)	Commodity Exports as Per Cent of Domestic Gross Output of Commodities	Domestic Gross Industrial Output (Secondary Sector only) (Cur. mil. yen)	Commodity Exports as a Per Cent of Domestic Gross Industrial Output
1878–82	30.3	588	5.1%	157	19.3%
1888–92	72.6	763	9.5	303	24.0
1898–1902	219.2	1,959	11.2	1,000	21.9
1908–12	444.8	3,281	13.5	1,780	25.2
1918–22	1,779.9	11,519	15.5	7,556	23.6
1928–32	1,629.5	11,101	14.7	8,345	19.5

[a] Tanzan Ishibashi, ed., "The Foreign Trade of Japan," *Oriental Economist*, 1935, p. 658.
[b] From working papers at the Economic Research Institute at Hitotsubashi University.

intensive goods were being imported in exchange for labor-intensive commodities.

II. *Capital-Intensive Phase, 1895-1930*

Before the turn of the century movements in the factor-supply situation at the margin seem to have reversed themselves, leading to a reversal in the direction of relative factor-price changes.[22] As a result, pressures for what was economically efficient now tended in the direction of modern techniques. An examination of the average capital-labor ratios in the spinning industry[23] shows the considerably higher

[20] Transportation costs were frequently at a remarkable 2-3 per cent of c.i.f. price. Japan made special efforts to adapt to the particular local needs of her markets, for which the relatively small scale of her industry was peculiarly well suited. She was also aided substantially by a timely silk-worm disease in France and Italy, the war with China and the Bombay plague, which opened the European silk and Chinese-Korean cotton textile markets, respectively.

[21] Since the product of the substantial agricultural sector was used almost exclusively for feeding a growing population, the latter comparison seems more relevant.

[22] See Table II, *supra*.

[23] See Table III.

levels of capital intensity during phase 2 of Japanese development and the *changes* in capital intensity tending in opposite directions during the two periods.

Presumably, the rural "disguised unemployed"—more aptly here, the bulk of marginal rural working hours—can be siphoned off but once. Population growth itself is a much slower process. The participation rate of that population which had risen from 54.3 per cent in 1878-82 to 56.2 per cent in 1893-97 also consistently declined thereafter.

There is much qualitative evidence to support a reversal in the marginal factor supply situation around the turn of the century.[24] Real wages actually increased, as shown in Table II. This was partly due also to shifts in the elements of imperfect competition in the labor market. During the Sino-Japanese War (1894-95) the government "had to have armies of coolies [for the logistic support of a much smaller fighting force] and had to pay them higher wages than the highest paid artisan in Japan. When the coolies came back, they asked for the same higher wages."[25] Moreover, the delayed trend towards urbanization served to undermine tacit acceptance of rural based wages. In the two years 1896-97 Japan experienced her first strikes, 50 in number; 37 were reported to have been aimed at higher wages.[26] The *Rodo-kumiai-kisekai,* an institution to foster labor organization, was established in 1897; machine tool (1897) and railroad workers (1898) were the first to found institutions bearing some resemblance to our present-day unions.[27] The very fact that the government found it necessary to clamp down on workers through repressive legislation in 1900 bears evidence of the kind of change taking place.

But it would be a serious error to conceive of all this as an embryonic social reform movement. Only because the workers' bargaining power had previously been practically nonexistent can it be said to have increased. The first factory laws, passed in 1911 to go into effect in 1916, set a 12-hour maximum day and a 12-year minimum age. They did not affect the thousands of workshops of less than 5 operatives each, were beset with escape clauses (*e.g.,* for "light work," "silk export," "busy periods"), and were nowhere rigorously enforced.

[24] *E.g.,* "The great activity of the various industries . . . has recently resulted in a very perceptible scarcity of employees." E. L. Barry in *Transactions of the New England Cotton Manufacturing Association,* No. 61 (Waltham, Mass., 1896), p. 93. See also Japan, Ministry of Agriculture and Forestry, *Short History of Agricultural Development in Japan* (Tokyo, 1952) p. 14. and Heber, *op. cit.,* p. 52.

[25] Schroeder, "The Labour Question in Japan," *Eastern World,* August 31, 1907, XV, 7.

[26] Heber, *op. cit.,* p. 32.

[27] Heber (*ibid.,* p. 233) confirms that "the idea of some . . . protection for workers goes back to the beginnings of the 90's."

The trend, nevertheless, cannot be denied; it continued in the 'twenties with the enactment of health insurance measures, a new minimum working age at 14 and the prohibition of night work for women and children. Japan's increased sensitivity to world opinion as she became a major power must be given a good share of the credit.[28] The underlying labor market imperfections were not substantially alleviated during this second phase of development. But it is certain that market forces, combined with some shifts in bargaining position, made labor a relatively more expensive factor than it had previously been.

At the same time, the economy's investment funds were growing at a faster rate than before. This was due to the increased domestic savings potential[29] as well as the substantial inflow of foreign capital. National income had increased at annual rates of 4-5 per cent during the last decades of the nineteenth century; per capita income, a better indicator of the savings potential, at from 3-4 per cent.[30] With domestic consumption gains restrained by fiscal and monetary measures,[31] as well as by the speed of the developmental process itself, margins for further capital formation were increasing both absolutely and relatively. The inflow of foreign capital gave further impetus to this tendency. Japan now felt sufficiently self-assured to dismiss her old fears concerning the political implications of capital imports; foreign investors were increasingly coming to view her as a sound and profitable area for investment. This complementary shift in attitudes came largely as a result of the considerable international stature Japan was gaining by virtue of her victory over China (1894-95), participation in the suppression of the Boxer Rebellion (1900), victory over Russia (1904-05), participation in the first world war and recognition as one of the "Big Five" at Paris. In 1899 she was already in a position to obtain consent for the abolition of all vestiges of extraterritoriality; in 1910 full tariff autonomy was achieved.

The more immediately economic manifestation of Japan's international viability came in the form of accession to the gold standard in

[28] This factor assumes special significance after the first world war when membership in the International Labor Organization and participation in the Washington Hours Conference (in spite of temporary exemptions from the 8-hour day and the 48-hour week accorded Japan because of her "backwardness") increased the pressure.

[29] E. H. Norman (*Japan's Emergence as a Modern State*, Institute of Pacific Relations Inquiry Ser. [New York, 1940], p. 117) apparently agrees: "By that time [1897] the flotation of 200 million yen worth of railway bonds was largely subscribed to by Japanese capitalists who were now strong enough to absorb the lion's share."

[30] These figures from the author's *Japan: A Case Study in Development, op. cit.*, p. 164.

[31] Briefly: heavy land and business taxes on the large low-income group, high rents, loopholes and subsidies for the "dependable" landlord and industrialist classes, severe credit rationing, some direct controls.

1899, a step made possible, in the immediate sense, by a 360 million yen Chinese War indemnity, payable in London in pounds sterling. Finance Minister Matsukata's "hope of inviting capital at a low rate of interest from gold standard countries in order to help . . . the industrial growth of the country"[32] was soon justified. In 1896 and 1914 government bond issues placed abroad accommodated, on the average, a 17 per cent yearly import surplus. By 1904, 195 million yen in foreign exchange had been made available; in 1914 this figure stood at 1979 millions. In the 1920's private portfolio and direct investments substantially supplemented loans to local and central governments for the first time.

The movement in the factor-price ratios during this second phase of Japanese development contrasts markedly with that in the earlier period. Except for the years of the first world war, characterized by a temporary abnormal scarcity of capital, it is quite clear that this factor was now growing at a faster rate than labor. Marginal changes in both the relative availabilities and in the extent of market imperfections tended in the same direction, towards a relative cheapening of capital. The situation now aproaches that with which we are familiar in the advanced economy. Relative wage increases (plus, possibly, the anticipation of future changes in the same direction) led to the adoption of more advanced methods of production in many areas of Japanese industry after the turn of the century.[33]

The criteria of economic efficiency now prescribed a movement towards the adoption of more capital-intensive methods of production. The results of the altered price relationship between the factors are seen most clearly in the industrial "rationalization" movement of the 1920's.[34] American cotton was now redisplacing the Indian variety. Roving operations geared to heavy labor inputs were gradually curtailed. Between the first world war and 1930 the machinery input in factory industry, in power equivalents per worker, was approximately doubled. Even in the multitude of small workshops the increasing availability of electric power encouraged the mechanization of such processes as weaving.

[32] Masayoshi Matsukata, *Report on the Adoption of the Gold Standard in Japan* (Tokyo, 1899), p. xi1.

[33] Also to be considered is the fact that the benefits to be "squeezed" from nonspectacular adaptations, better organization, etc., while initially of potentially great importance, do historically have narrower physical limits than the ever-increasing pool of labor-saving devices.

[34] "Labor-saving appliances were everywhere in evidence after World War I. The use of the warp-stop, of the bobbin magazine attachment and particularly the various inventions or adaptations of automatic looms . . . teach us that the Japanese . . . recognize the necessity to apply mass production methods in view of the . . . increase in wages." Pearse, *op. cit.*, pp. 83, 114.

During this second phase of Japanese development marginal changes in factor endowment resulted in a higher productivity of labor, cooperating with more and better forms of capital. The capital-labor ratio seems to have been rising faster than output per worker (see Table III, for the spinning industry), which means that capital-output ratios will also rise, if at a slower rate than capital-labor ratios.[35] The transition to the self-generating growth phase in Japanese development was marked by the fact that the spectacular capital-output-ratio-raising type of substitution innovation now outweighed those of a nonspectacular capital-output-ratio-reducing variety.

[35] With higher levels of income, shifts in demand towards more capital-intensive final goods can be expected to have a similar effect on over-all capital-output ratios.

THE MULTIPLIER AND THE MARGINAL PROPENSITY TO IMPORT

By MIYOHEI SHINOHARA*

The point to be developed here is very simple, but it concerns a problem long neglected and sometimes completely suppressed by economists.

Keynesian economics has developed remarkably since the emergence of the *General Theory*. However, theoretical models have usually been based upon the drastic assumption that the price level remains unchanged in the process of income expansion. The "real" cycle theories depending upon the interaction of multiplier and accelerator, for example, have been constructed on this assumption. On the other hand, the economics of inflation has been based on the assumption of constant output. The intermediate areas, in which both output and prices fluctuate have rarely been explored.[1] By assuming constancy of the price level, the usual type of analysis has neglected the difference between the real-income multiplier and the money-income multiplier, or the effects of the elasticity of the price level with respect to effective demand (Keynes' e_p) upon the money-income multiplier. In addition, the influence of changes in the relative prices of imported goods upon the numerical value of the marginal propensity to import (or, say, the marginal "foreign leakage" ratio) has been assumed away in some of those attempts that have been made to analyze open systems.[2] In this article, we analyze the multiplier in an open system with foreign trade, taking into account changes in the general price level and in the relative prices of imported goods.

I. *The Marginal Propensity to Import and the Leakage*

As we are dealing with an open system, it may be convenient to examine, first, unrecognized characteristics of the marginal propensity to

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[1] I once attempted to bridge and combine the theory of the multiplier and the analysis of price fluctuations. But my analysis was then restricted to a closed system and omitted foreign trade. M. Shinohara, "Real and Money Income Multiplier," *Annals Hitotsubashi Acad.*, Apr. 1953, III, 192–208.

[2] Tse Chun Chang, *Cyclical Movements in the Balance of Payments* (Cambridge, Eng., 1951), esp. pp. 79–95; J. H. Adler, "United States Imports During the Interwar Period," *Am. Econ. Rev.*, June 1945, XXXV, 418–30; Hans Neisser and Franco Modigliani, *National Incomes and International Trade* (Urbana 1953), Ch. 4, esp. p. 78; J. J. Polak, *An International Economic System* (Chicago, 1953), esp. Ch. 2, 3 and 8.

import. Before doing so, however, it is necessary to point out that there are three different ways of computing the marginal propensity to import: (1) the marginal propensity to import in *money* terms, dM/dY, (2) the marginal propensity to import in *real* terms,

$$d\left(\frac{M}{P}\right)\Big/ d\left(\frac{Y}{P}\right),$$

(3) the marginal propensity to import in *physical* terms,

$$d\left(\frac{M}{P_m}\right)\Big/ d\left(\frac{Y}{P}\right) = \frac{dm}{dY_r},$$

where M, m, and P_m denote the total value, quantity and unit-price of imported goods respectively, and Y, $Y_r(=Y/P)$ and P represent money and real national incomes and the general price index. The second propensity employs a common deflator and the third one different deflators. The distinction between the two is very important, as will be indicated later.

Suppose the relative prices of imported goods rise. Then, even if the ratio of the physical quantity of imports to real national income were to remain constant, the proportion of the "foreign leakage" would naturally increase.[3] We do not refer here to the problem of the effect of relative prices upon the quantity of imports. On the contrary, the effect to be emphasized here will be most conspicuous when the relative price-elasticity of import demand is equal to zero, for the alteration of the relative prices of imported goods will then be reflected perfectly proportionately in the change in the foreign-leakage ratio.

Nevertheless, in the ordinary statistical computation of the marginal propensity to import, the import quantity (the value of imports divided by the import-price index) is assumed to be a function of real national income (money national income divided by the general price index). This means that the derived marginal propensity to import leaves out of account the change in the foreign leakage ratio due to the change in the relative prices of imported goods. Therefore, it is not correct to think that this marginal propensity to import in *physical* terms, along with the marginal propensities to save and to tax as indicators of "home leakage," will determine the value of the multiplier.

Yet many statistical studies of the marginal propensity to import jump from this computation in physical terms to conjectures concerning

[3] Actually, when relative prices of imported goods rise and the terms of trade are adversely affected, real income may decline even if real output is constant. This is a supply-side effect, and for the convenience of our discussion we neglect it here. We may simply assume that this decline of real income is balanced by an increase due to other factors so that the ratio of physical imports to real income remains constant.

the value of the multiplier. For example, Chang, Polak, Adler, Modigliani and Neisser all computed the marginal propensity to import in physical terms.[4] Polak and Chang went on to make conjectures as to the value of the multiplier. It is possible that they preferred to compute the marginal propensity to import in physical terms because they wished to derive import demand functions that would be stable. In this respect their computations did yield results that were superior to those of computations carried out in money terms (for instance, De Vegh's[5]), for even if the latter may sometimes get a higher correlation coefficient, it may be a spurious one.[6]

When the multiplier is calculated in real terms, as is often done, the marginal propensity to import must be expressed in a comparable form; we should adopt the marginal propensity to import using a common deflator, for it would reflect adequately the ups and downs of the foreign-leakage ratio due to changes of the relative prices of imported goods. When we use different deflators, the marginal propensity to import may be more stable. However, when we use a common deflator, we take into account the effects of the relative changes of import prices on the propensity to import. Each method has its respective advantages, but studies have usually lost sight of the latter (economically more important) advantage and have employed the physical-terms method.

The ordinary marginal propensity to import in physical terms, ν, which Chang, Polak, etc., used is derived from the following equation:

$$M/P_m = \mu + \nu(Y/P) \tag{1}$$

where $\nu = dm/dY_r$. What is the difference between this and the marginal propensity to import using a common deflator

$$d\left(\frac{M}{P}\right) \Big/ d\left(\frac{Y}{P}\right)?$$

The latter can be expressed as follows:

$$\frac{d\left(\frac{P_m m}{P}\right)}{d\left(\frac{Y}{P}\right)} = \frac{d\left(\frac{P_m}{P}\right)m + dm\left(\frac{P_m}{P}\right)}{dY_r} = \frac{dm}{dY_r}\,\frac{P_m}{P}\left\{1 + \frac{d\left(\frac{P_m}{P}\right)}{\left(\frac{P_m}{P}\right)}\,\frac{m}{dm}\right\} \tag{2}$$

[4] See footnote 2.

[5] I. De Vegh, "Imports and Income in the United States and Canada," *Rev. Econ. Stat.*, Aug. 1941, XXIII, 130–46.

[6] Prices fluctuate very often in the same direction as changes in physical quantities, and thus the cyclical covariation of price and quantity series may entail an apparently high correlation between imports and national income in money terms, in spite of a possibly poor correlation of them in real or physical terms.

P_m/P is an index number, and it may take values different from unity, according as the real values m and Y_r in dm/dY_r are defined in terms of different base-periods. However if we start from the present instant of time when P_m/P is unity, P_m/P may be crossed out.[7] For since we are concerned with an infinitesimal change and since the difference between the base and the current point of time is extremely small, P_m/P may still be approximately equal to unity. Equation (2) would then be:

$$\frac{d\left(\frac{P_m m}{P}\right)}{d\left(\frac{Y}{P}\right)} = \frac{dm}{dY_r}\left\{1 + \frac{d\left(\frac{P_m}{P}\right)}{\frac{P_m}{P}} \cdot \frac{m}{dm}\right\}.$$

Thus, the marginal propensity to import in real terms depends not only upon the marginal propensity to import in physical terms $(=dm/dY_r)$, but also upon the flexibility of the relative prices of imported goods with respect to the volume of imports. We must bear in mind that this flexibility is not the reciprocal of the price elasticity of import demand. It is merely an "observable" or *ex post* flexibility, as the mode of expansion of the equation indicates.

The differences between the above two coefficients are sometimes quite remarkable and very important in countries where the proportion of imports to national income is very large and annual fluctuations of the terms of trade are marked. If we neglect this fact and use the marginal propensity to import in physical terms for estimating the numerical value of the multiplier, the procedure will entail a serious theoretical bias; for we then lack an indispensable ingredient in the construction of the multiplier. Furthermore, if an econometric model is constructed in physical terms the curious result may ensue that when the terms of trade become extremely favorable there will appear to be an import surplus measured in physical terms in spite of the actual occurrence of an export surplus measured in terms of current values.

For problems not involving exports and imports, different deflators are rarely used. For instance, in the case of the consumption or saving function, as a rule a common deflator is used. However, in the Klein-Goldberger econometric model, there arise the following discrepancies between the two concepts of the personal-saving ratio. In money terms, it is 5 per cent (1929), 4 per cent (1949), 8 per cent (1952); whereas in physical terms it is 7 per cent (1929), -1 per cent (1949), and 2 per

[7] P_m/P also appears in the left-hand term of equation (2), but here an increment is involved, hence it could not be crossed out in this term.

cent (1952). These discrepancies are obviously due to the use of different deflators.[8]

Since the multiplier is a tool for analyzing the demand side of the economy, a common deflator should be used in computing it in order not to eliminate the effect of relative price changes upon the numerical value of the marginal leakage. In this respect, multiplier analysis is fundamentally different from input-output analysis which is a tool for analyzing the supply side. In the latter case, it would be very useful to make an intertemporal comparison of the physical production coefficients of various industries, by using different deflators.[9]

II. *Algebraic Analysis of the Marginal Propensity to Import*

After examining the characteristics of the marginal propensity to import as a marginal-leakage ratio, we move to an algebraic explanation of the implications of the marginal propensity to import in money and real terms. By doing this, we can make clearer the numerical relationship among the three kinds of marginal propensity to import when changes occur in the relative prices of imported goods and the intensity of inflation.

Let us start with the preliminary assumption that the marginal propensity to import in physical terms is stable. Transforming equation (1), we may write

$$M = \mu P_m + \nu P_m \frac{Y}{P} \cdot \qquad (1')$$

By differentiating this with respect to money national income, Y, we derive the marginal propensity to import in money terms,

$$\frac{dM}{dY} = \nu P_m \left(\frac{P - Y \dfrac{dP}{dY}}{P^2} \right) = \nu \frac{P_m}{P}(1 - e_p) = \nu \frac{P_m}{P} e_o \qquad (3)$$

where

$$e_p = \frac{dP}{dY}\frac{Y}{P}, \quad \text{and} \quad e_0 = \frac{dY_r}{dY}\frac{Y}{Y_r},$$

the elasticity of the price level and of output with respect to effective demand respectively. As $Y = PY_r$, necessarily $e_o + e_p = 1$.[10]

[8] L. R. Klein and A. S. Goldberger, *An Econometric Model of the United States, 1929–1952* (Amsterdam, 1955); Carl Christ, "Aggregative Econometric Models," *Am. Econ. Rev.*, June 1956, XLVI, 385–408, esp. 396–97. Christ correctly commented, "Thus their consumption function is fitted to a distorted set of data, from the point of consumption decisions."

[9] *Cf.* Richard Stone and S. J. Prais, "Systems of Aggregative Index Numbers and Their Compatibility," *Econ. Jour.*, Sept. 1952, LXII, 565–83.

[10] The first user of this formula was J. M. Keynes. However, he developed two formulas, one measuring Y and P in money terms and another measuring them in wage terms. That there is an algebraic mistake was shown in my previous paper, *op. cit.*, pp. 200–03.

The following important point now becomes evident. Even if the physical-terms marginal propensity to import ν has great stability, the marginal propensity to import in money terms will be variable according as P_m/P and e_o fluctuate. It would be a serious omission to be satisfied with the computation of ν alone.

If prices do not change, *i.e.*, $e_o=1$, then

$$\frac{dM}{dY} = \nu \frac{P_m}{P}.$$

If the case were one of hyperinflation, *i.e.*, $e_o=0$, then

$$\frac{dM}{dY} = 0.$$

This is because under the assumption of $e_o=0$, an increase of money income will not induce any increase of real output, *i.e.*, Y/P is constant; and by equation (1), the quantity of imports will also be constant when Y/P is constant. Further P_m is also given as a parameter, so $m\times P_m=M$ is also invariant. This is why dM/dY will be zero when $e_o=0$. This of course assumes away the possible intra- and intertemporal substitution through the relative price effect. For instance, when domestic inflation reduces P_m/P, there will occur a substitution of imported goods for domestic goods. To take account of this fact, our equation must be further extended. Let the relative price effect be introduced in equation (1):

$$m = \mu + \nu Y_r - \xi\left(\frac{P_m}{P}\right) \tag{4}$$

where

$$\nu = \delta m/\delta Y_r \quad \text{and} -\xi = \delta m/\delta \left(\frac{P_m}{P}\right).$$

Multiplying both sides of the equation by P_m and differentiating with respect to Y, we get the marginal propensity to import in money terms:

$$\begin{aligned}\frac{d(mP_m)}{dY} &= \nu\frac{P_m}{P}e_o + \frac{\frac{dP}{dY}\xi P_m{}^2}{P^2}\\ &= \frac{P_m}{P}\left(\nu e_o + \xi P_m e_p \frac{1}{Y}\right)\\ &= \frac{P_m}{P}\left(\nu e_o + \eta_m e_p \frac{m}{Y_r}\right)\end{aligned} \tag{5}$$

where

$$\eta_m = \frac{\partial m}{\partial\left(\frac{P_m}{P}\right)} \frac{\left(\frac{P_m}{P}\right)}{m} = \xi \frac{\left(\frac{P_m}{P}\right)}{m},$$

i.e., the price elasticity of import demand.

If $e_p = 0$,

$$\frac{dM}{dY} = \nu \frac{P_m}{P},$$

and if $e_p = 1$, then

$$\frac{dM}{dY} = \eta_m \frac{P_m}{P} \frac{m}{Y_r} = \eta_m \frac{M}{Y}.$$

The fact that dM/dY depends on η_m indicates that dM/dY is affected by the degree of substitution of imported goods caused by the domestic inflation. Let us further assume that $e_p = 1$ and $\eta_m = 1$, then

$$\frac{dM}{dY} = \frac{P_m}{P} \frac{m}{Y} = \frac{M}{Y}.$$

This means the marginal propensity to import in money terms will then coincide with the average propensity to import. When $e_p = 1$ and $\eta_m = 0$,

$$\frac{dM}{dY} = 0.$$

We have so far analyzed the marginal propensity to import in money terms. This is useful when the multiplicand is an increment of monetary expenditure. However, when we want to use the real-income multiplier, the marginal propensity to import must be expressed in real terms (using a common deflator). Let us attempt this.

Multiplying both sides of (4) by P_m/P, and differentiating with respect to real income Y_r, we obtain the following equation:[11]

$$\frac{d\left(\frac{mP_m}{P}\right)}{dY_r} = \frac{P_m}{P}\left[\nu - \frac{e_p}{e_o}\left\{\nu + \left(\frac{\mu - 2\eta_m m}{Y_r}\right)\right\}\right]. \tag{6}$$

If we assume in this equation that $e_p = 0$, then

[11] As to the derivation of equation (6), see the Appendix I.

$$\frac{d\left(\dfrac{mP_m}{P}\right)}{dY_r} = \nu\,\frac{P_m}{P}.$$

If $e_p=0.5$,

$$\frac{d\left(\dfrac{mP_m}{P}\right)}{dY_r} = \frac{P_m}{P}\left(\frac{\mu - 2\eta_m m}{Y_r}\right).$$

And if $e_p=1$ (therefore $e_o=0$),

$$\frac{d\left(\dfrac{mP_m}{P}\right)}{dY_r} = \infty,$$

provided that the expression enclosed in $\{\ \}<0$. If the expression enclosed in $\{\ \}>0$, it will be $-\infty$. If $\eta_m=0$, it will be

$$\frac{P_m}{P}\left(\nu - \frac{e_p}{e_o}\,\frac{m}{Y_r}\right),$$

because

$$\nu + \frac{\mu}{Y_r} = \frac{m}{Y_r}.$$

What I have shown in this section may be summarized as follows: If prices are constant, *i.e.*, $e_o=1$ and $e_p=0$, then P_m/P is also invariable, because P_m is given as a parameter. Therefore the coefficients, ξ or η_m, expressing the relative price effect do not affect the volume of imports. In this case, dM/dY, as well as

$$d\left(\frac{M}{P}\right) \Big/ d\left(\frac{Y}{P}\right), \quad \text{is equal to } \nu\,\frac{P_m}{P},$$

i.e., it is identical to the marginal propensity to import in physical terms multiplied by the relative prices of imported goods. When the case is one of hyperinflation, *i.e.*, $e_o=0$, then the money-terms marginal propensity to import

$$\frac{dM}{dY} = \eta_m \cdot \frac{M}{Y}.$$

This means that in the hyperinflation dM/dY is zero when $\eta_m=0$, and that the larger the price elasticity of import demand η_m becomes, the

greater the numerical value of dM/dY will be. And in the critical case where $\eta_m=1$, the marginal and the average propensities to import in money terms coincide with each other. Therefore, when $e_o=0$, the marginal propensity to import in money terms $\gtreqless$ the average propensity to import in money terms, according as $\eta_m \gtreqless 1$. Since

$$dM/dY = \eta_m \frac{M}{Y}$$

in the case of $e_o=0$,

$$\eta_m = \frac{dM}{dY}\frac{Y}{M}.$$

And in the critical case where

$$\eta_m = 1, \qquad \frac{dM}{dY}\frac{Y}{M} = 1.$$

The economic implication is clear. Since $e_o=0$, $dY/Y=dP/P$, and since P_m is constant, $dM/M=dm/m$. Further since P_m is a parameter,

$$dP/P = -d\left(\frac{P_m}{P}\right)\Big/\left(\frac{P_m}{P}\right).$$

Therefore, when $e_o=0$,

$$\eta_m = \frac{dM}{dY}\frac{Y}{M} = \frac{dm}{dP}\frac{P}{m} = -\frac{dm}{d\left(\frac{P_m}{P}\right)}\frac{\left(\frac{P_m}{P}\right)}{m}.$$

However, when a relative price effect has to be taken into account, the results in the case of

$$d\left(\frac{M}{P}\right)\Big/d\left(\frac{Y}{P}\right)$$

will be as follows: When $e_o=0$, $d(Y/P)$ will be zero. Therefore, the marginal propensity to import in real terms will be infinite. Intermediate cases where $1>e_o>0$ can be judged from equation (6), but the propensity in real terms appears to be more volatile than in money terms especially in semi-inflationary stages, for its numerical values range from ∞ (when $e_o=0$) to

$$\nu\frac{P_m}{P}\text{ (when } e_o = 1).$$

Even on the assumption that the marginal propensity to import in physical terms is stable, it is clear that the marginal foreign-leakage ratio which is an ingredient of the multiplier is not always stable, depending on the instability of P_m/P, e_o and η_m.

III. *Real- and Money-Income Multipliers Reconsidered*

We have explained that even if the coefficient which has a statistical stability might be the marginal propensity to import in physical terms, the coefficient measuring the marginal foreign leakage adequately as a component of the multiplier should be the marginal propensity to import either in real terms or in money terms, depending on whether we are concerned with the real- or money-income multiplier. In this section we consider the implications of the preceding analysis for the analysis of the multiplier in an open system.

As we are concerned here with the multiplier in an open system with foreign trade and public finance, we must also examine the other two marginal-leakage ratios—the marginal propensities to save and to tax—in order to complete our multiplier analysis. The marginal propensity to tax should naturally be in money terms, since the tax rates are applied to money incomes. The marginal propensity to save might more plausibly be defined in real terms, because the average propensity to consume or to save is regarded as a function of real income rather than money income.

For simplicity, we start from the simplest linear consumption function in real terms,

$$\frac{C}{P} = a + b\left(\frac{Y_d}{P}\right) \tag{7}$$

where C is money consumption expenditure, and Y_d is money personal disposal income. From this, we obtain

$$C = aP + bY_d. \tag{7'}$$

Differentiating this with respect to Y_d, the marginal propensity to consume in money terms is computed:

$$\begin{aligned} \frac{dC}{dY_d} &= \frac{dP}{dY_d}a + b = e_p\frac{aP}{Y_d} + b \\ &= e_p\frac{aP}{Y_d} + (e_p + e_o)b = e_p\frac{C}{Y_d} + e_ob \end{aligned} \tag{8}$$

where we assume that, approximately,

$$e_p = \frac{dP}{dY}\frac{Y}{P} = \frac{dP}{dY_d}\frac{Y_d}{P}.$$

When $e_p=1$, we get

$$\frac{dC}{dY_d}=\frac{aP}{Y_d}+b=\frac{C}{Y_d}$$

and the full-employment multiplier in the closed system (Goodwin)[12] will be calculated from this. Goodwin's and our multiplier perfectly coincide in this case. When $e_p=0$,

$$\frac{dC}{dY_d}=b,$$

and the ordinary underemployment multiplier will be obtained from this. Equation (8) covers both conceivable areas and also intermediate cases.[13] It is worth noticing that even if the marginal propensity to consume in real terms is constant, the marginal propensity to consume in money terms will be larger as the intensity of the price fluctuation becomes stronger. For this reason, an international comparison of the money-terms marginal propensities to consume and the money-income multipliers, once attempted by Richard and W. M. Stone, makes little sense.[14]

We denote here as A the various exogenous expenditures, such as government expenditure for goods and services G, private capital formation I, exports E, and other autonomous expenditures. We assume that imports M are siphoned off as a foreign leakage and that savings S and taxes T are absorbed as domestic leakages during the working out of the multiplier process. Then the money-income multiplier would be,

$$\frac{dY}{dA}=\frac{1}{1-\dfrac{dC}{dY_d}\left(1-\dfrac{dT}{dY}\right)+\dfrac{dM}{dY}}. \tag{9}$$

Representing dT/dY as t, and substituting equations (8) and (5) into (9), we obtain

$$\frac{dY}{dA}=\frac{1}{1-\left(e_p\dfrac{C}{Y_d}+e_ob\right)(1-t)+\dfrac{P_m}{P}\left(ve_0+\eta_me_p\dfrac{m}{Y_r}\right)}. \tag{10}$$

Here, b, t and v are assumed to have stable values, and e_p, e_o and

[12] R. M. Goodwin, "The Multiplier," in Seymour Harris, ed., *The New Economics* (New York, 1947), pp. 482–99.

[13] For a comparison of the real- and money-income multipliers in a closed system, see Appendix II.

[14] R. and W. M. Stone, "The Marginal Propensity to Consume and the Multiplier, a Statistical Investigation," *Rev. Econ. Stud.*, Oct. 1938, VI, 1–24.

P_m/P are supposed to fluctuate according to the phases and conditions of the business cycle and balance of payments. However, since we cannot express their behavior mathematically, they are treated here as parameters. The elasticity η_m is a coefficient derived from a constant

$$-\xi = \partial m/\partial\left(\frac{P_m}{P}\right),$$

so it may change and be influenced by the alteration of P_m/P and m.

The main components of A, *i.e.*, G, I and E, consist furthermore of two parts, prices and quantities. Consequently, we can express them in this way, $G=gP_g$; $I=iP_i$; $E=eP_e$. g, i and e denote quantities, and P_g, P_i and P_e represent prices. It is very important to observe that not only increases in quantity but also mere price rises will be the multiplicands of multiplier expansion.

Furthermore, even in the case of the real-income multiplier

$$d\left(\frac{Y}{P}\right)\bigg/d\left(\frac{A}{P}\right),$$

the mere increases of relative prices (P_g/P, P_i/P and P_e/P) will entail the multiplier process in real terms. In other words, the changes of relative prices can be the multiplicand. This means that even when the amount of investment or of exports, deflated by its own price indexes, is invariant, it can bring about an increase of real income in so far as its value rises when deflated by the general price index. This fact was recognized, first, by Hicks,[15] in relation to the changes of P_i/P, and secondly by Polak,[16] in relation to the changes of P_e/P. However, in general, this point has not been taken into consideration, especially in econometrics.

In the case of the real-income multiplier, we should use b in equation (7) as the marginal propensity to consume, and equation (6) as the marginal propensity to import. However, since the marginal propensity to tax was originally defined in money terms, it must be transformed into real terms. Assume a linear tax function,

$$T = tY - H \tag{11}$$

where t is the marginal propensity to tax and H is a constant. Dividing both sides by the price index P,

$$\frac{T}{P} = tY_r - \frac{H}{P}. \tag{11'}$$

Differentiating this with respect to Y_r,

[15] J. R. Hicks, *A Contribution to the Theory of the Trade Cycle* (Oxford, 1950), p. 130.
[16] Polak, *ibid.*, pp. 22–23.

$$t^* = \frac{d\left(\frac{T}{P}\right)}{dY_r} = t - \frac{d\left(\frac{H}{P}\right)}{dY}\frac{dY}{dY_r} = t + \frac{e_p}{e_o}\frac{H}{Y}. \tag{12}$$

This t^* (the marginal propensity to tax in real terms) is supposed to be a component of the real-income multiplier. In equation (12), if $e_p=0$, then $t^*=t$; if $e_p=0.5$, then $t=t^*+H/Y$; and if $e_p=1$, then $t^*=\propto$. This is because when $e_p=1$, then $\Delta Y_r=0$ by definition, whereas the tax in money terms will increase more speedily than money national income (consequently more than the price level too) under the restriction of equation (11). $\Delta(T/P)$ is positive, and, when this is compared with $\Delta Y_r=0$, we have $t^*=\propto$.

As a formula for the real-income multiplier, we can derive an equation similar in form to equation (9),

$$\frac{dY_r}{dA_r} = \frac{1}{1 - dC_r/dY_r(1 - dT_r/dY_r) + dM_r/dY_r} \tag{13}$$

where $A_r=A/P$, $C_r=C/P$, $Y_{dr}=Y_d/P$, $T_r=T/P$ and $M_r=M/P$. Substituting into this equation the coefficients in equations (7), (12) and (6), we have an equation for the real-income multiplier.

$$\frac{dY_r}{dA_r} = \frac{1}{1 - b\left(1 - t - \frac{e_p}{e_o}\frac{H}{Y}\right) + \frac{P_m}{P}\left[\nu - \frac{e_p}{e_0}\left\{\nu + \left(\frac{\mu - 2\eta_m m}{Y_r}\right)\right\}\right]}. \tag{14}$$

When $e_p=0$, the equation will be,

$$\frac{1}{1 - b(1 - t) + \frac{P_m}{P}\nu}.$$

This can also be derived by assuming $e_p=0$ in equation (10) for the money-income multiplier. However, in the world in which $e_p\neq 0$, the real- and money-income multipliers may differ considerably from each other.

Thus post-Keynesian arguments have been too much simplified by assuming a world in which no change in prices occurs and no allowance is made for changes in the relative prices of imported goods as a factor bringing about fluctuations in the leakage. In making predictions for the economy, it becomes necessary to judge the magnitude of e_p, because the multiplier also depends upon e_p. Thus, results of predictions could considerably differ, according as prices in the future economy are anticipated as stable or inflationary.

IV. *Conclusion*

It has not been our intention just to complicate the various formulas. The purpose of this article has been to clarify the role of absolute and relative price fluctuations during the multiplier process, to bring out thoroughly the limitations of existing econometric studies on the multiplier, and to attempt to consolidate the theory of the multiplier and the analysis of price fluctuations. Post-Keynesian economists seem to have become accustomed to arguments in real terms, and to "real" trade-cycle theories. However, except during the 1930's, the price cycle was more typical than the real cycle. The amendments of theory which I have proposed are particularly significant for countries in which the terms of trade are not constant and the ratios of imports to national income are comparatively large. In such countries, the ordinary type of computation of the marginal propensity to import will not serve as a useful tool for formulating economic policy nor for understanding the economy. I repeat that the points examined here are very simple, but, notwithstanding their importance, they have long been neglected by many economists.

Appendix

I. Equation (6) in the text can be derived as follows:
Starting from the following equation,

$$m = \mu + \nu Y_r - \xi\left(\frac{P_m}{P}\right)^2 \tag{4}$$

and multiplying by P_m/P on both sides of (4),

$$\frac{mP_m}{P} = \mu\frac{P_m}{P} + \nu\frac{P_m}{P}Y_r - \xi\left(\frac{P_m}{P}\right). \tag{4'}$$

Differentiating this with respect to real income Y_r,

$$\frac{d\left(\dfrac{mP_m}{P}\right)}{dY_r} = \left[\frac{\left(\mu\dfrac{P_m}{P}\right)}{dY} + \frac{d\left(\nu\dfrac{P_mY_r}{P}\right)}{dY} - \frac{d\left\{\xi\left(\dfrac{P_m}{P}\right)^2\right\}}{dY}\right]\frac{dY}{dY_r}.$$

Substituting the following results into the above,

$$\frac{d\left(\dfrac{\mu P_m}{P}\right)}{dY} = \frac{-\dfrac{dP}{dY}\mu P_m}{P^2} = \frac{-e_p\dfrac{\mu P_m}{Y}}{P};$$

$$\frac{d\left(\frac{\nu P_m Y_r}{P}\right)}{dY} = \frac{P\, d\left(\frac{\nu P_m Y_r}{dY}\right) - \frac{dP}{dY}\nu P_m Y_r}{P^2} = \frac{\nu \frac{P_m}{P} e_o - e_p \nu \frac{P_m}{P}}{P};$$

$$\frac{d\left\{\xi\left(\frac{P_m}{P}\right)^2\right\}}{dY} = \frac{-\frac{d(P^2)}{dY}\xi P_m^2}{P^4} = -\frac{d(P^2)}{dP}\frac{dP}{dY}\frac{\xi P_m^2}{P^4}$$

$$= -2P\frac{dP}{dY}\frac{Y}{P}\frac{\xi P_m^2}{P^4}\frac{P}{Y} = -e_p\frac{2\xi\left(\frac{P_m}{P}\right)^2}{Y};$$

$$\frac{dY}{dY_r} = \frac{P}{e_0},$$

we obtain the following equation.

$$\frac{d\left(\frac{mP_m}{P}\right)}{dY_r} = \nu\frac{P_m}{P} - \frac{e_p}{e_o}\left\{\frac{\mu P_m}{Y} + \nu\frac{P_m}{P} - \frac{2\xi\left(\frac{P_m}{P}\right)^2}{Y_r}\right\}.$$

As the equation is still complicated for interpretation, we may simplify it by introducing the price elasticity of import demand,

$$\eta_m = \xi\frac{\left(\frac{P_m}{P}\right)}{m}.$$

$$\frac{d\left(\frac{mP_m}{P}\right)}{dY_r} = \frac{P_m}{P}\left[\nu - \frac{e_p}{e_o}\left\{\nu + \left(\frac{\mu - 2\eta_m m}{Y_r}\right)\right\}\right]. \tag{6}$$

II. Let us compare the real-income multiplier (k_r) and the money-income multiplier (k_m) under a closed system in which the influences of public finance and foreign trade are assumed away. As

$$k_r = \frac{1}{1-b}, \quad \text{and} \quad k_m = \frac{1}{1 - b - e_p\frac{aP}{Y}},$$

$$\frac{k_r}{k_m} = \frac{(1-b) - \frac{aP}{Y}e_p}{(1-b)} = 1 - e_p\frac{aP}{Y}k_r. \tag{a}$$

As it is a closed system, $Y = Y_d$. From equation (a), it follows that when $e_p = 0$, $k_r = k_m$, and when $e_p = 1$,

$$\frac{k_r}{k_m} = 1 - \frac{aP}{Y} k_r.$$

Since in general (in rigorous terms, if $S/Y > 0$),

$$\frac{aP}{Y} k_r < 1,$$

k_m will be relatively larger than k_r according as e_p becomes larger. In my previous article (*op. cit.*), a modification of equation (a),

$$\frac{k_r}{k_m} = e_o + e_p k_r \frac{S}{Y} \tag{b}$$

was called the fundamental equation.

We assume, next, the Duesenberry saving function,

$$\frac{S_r}{Y_r} = \beta \frac{Y_r}{Y_{ro}} - \alpha \qquad \text{(Duesenberry)}$$

where Y_{ro} is the highest real income in the previous peak and S_r is real savings. By multiplying both sides by PY_r, and differentiating this with respect to Y, we get

$$\frac{d(PS_r)}{dY} = \beta \frac{Y_r}{Y_{ro}} (1 + e_o) - \alpha. \tag{c}$$

This value ranges from

$$\left(\beta \frac{Y_r}{Y_{ro}} - \alpha\right) \text{ when } e_o = 0 \text{ to } \left(2\beta \frac{Y_r}{Y_{ro}} - \alpha\right)$$

when $e_o = 1$. The ratio between k_r and k_m in the case of the Duesenberry function is,

$$\frac{k_r}{k_m} = \frac{\beta \dfrac{Y_r}{Y_{ro}} (1 + e_o) - \alpha}{2\beta \dfrac{Y_r}{Y_{ro}} - \alpha}. \tag{d}$$

If $e_o = 1$, then $k_m = k_r$.

Modigliani's saving function was,

$$\frac{S_r}{Y_r} = \alpha^* + \beta^* \left(\frac{Y_r - Y_{ro}}{Y_r}\right). \qquad \text{(Modigliani)}$$

We merely note here the results of the computation:

$$\frac{d(PS_r)}{dY} = \alpha^* + \beta^*\left(1 - e_p\frac{Y_{ro}}{Y_r}\right) \tag{e}$$

When $e_p=0$,

$$\frac{d(PS_r)}{dY} = \alpha^* + \beta^*.$$

When $e_p=1$,

$$\frac{dPS_r}{dY} = \alpha^* + \beta^*\left(\frac{Y_r - Y_{ro}}{Y_r}\right) = \frac{S_r}{Y_r}$$

III. Colin Clark, in a very helpful comment, points out that, in the case of large countries (like the United Kingdom) whose imports represent a large fraction of the total supply, P_m may to some extent be a function of domestic money income Y. Although P_m is a parameter in my system, it now becomes a variable like P. Instead of my equation (3), he gets:

$$\frac{dM}{dY} = -\nu\frac{P_m}{P}(e_p - e_{pm}) + \nu\frac{P_m}{P} + \mu\frac{P_m}{P}e_{pm} \tag{f}$$

where

$$e_{pm} = \frac{dP_m}{dY}\frac{Y}{P_m}.$$

If we assume $e_{pm}=0$, equation (f) equals my equation (3). His equation, however, can be simplified into a more interesting form:

$$\frac{dM}{dY} = \mu\frac{dP_m}{dY} + \nu\left(Yr\frac{dP_m}{dY} + P_m\frac{dY_r}{dY} = \nu\frac{P_m}{P}e_o + e_{pm}\frac{P_m}{P}\left(\frac{\mu}{Y_r} + \nu\right)\right.$$

$$= \nu\frac{P_m}{P}e_o + e_{pm}\frac{M}{Y}. \tag{g}$$

Then even if $e_0=0$, dM/dY may not be zero, when e_{pm} is larger than zero and M/Y is comparatively large.

FACTOR SUBSTITUTION, CONSUMER WEALTH, AND GROWTH STABILITY

By Franz Gehrels*

The multiplier-accelerator model of national-income growth pioneered by Harrod provides, despite its drastic simplifications, a very useful starting point for analyzing the growth process. It is possible to introduce a number of modifications which should make the model a more useful one without unduly complicating it. Section I sets forth a model containing the following modifications: (1) a public budget which increases and decreases the money supply; (2) a market for equities, which are treated as securities for the determination of the interest rate; (3) the existence of some substitutability between factors of production; and (4) the addition of household wealth as one of the determinants of consumption. The remainder of the paper is an analysis of this model to determine by what means balance can be maintained between the rate of output growth determined by the scarcity of one factor, and the rate of growth warranted by the savings-investment relation. Section II will consider whether factor substitutability by itself can be counted on to maintain balance between the two rates of growth. Section III argues that monetary forces acting on saving may be required to bear the brunt of the adjustment, because of the limitations to substitutability of factors.

I. *Description of the Model*

The following assumptions will be made:

1. The level of technology is fixed.
2. There are only two factors of production, labor and capital.
3. Capital and labor are substitutable within a fairly wide range, but there are definite limits given by the state of technology. The elasticity of substitution is taken to be unity between these limits and then drops to zero at either extremity. This particular value of the elasticity is taken for convenience in dealing with the market value of equities and does not affect the generality of the subsequent argument. Substitution of factors will take place both through changes in

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factor combinations for particular products and through the substitution of products of different factor intensities by consumers.

4. The general price level of consumer and capital goods combined is fixed over time. Prices of individual goods will vary as the interest rate and money wages vary. If the interest rate falls, with an increase in the ratio of capital to labor, real and money wages must rise, because labor's marginal product rises with the increasing capital-labor ratio. This development will raise the prices of labor-intensive goods and lower those of goods which are capital-intensive.

5. There are no costs of government, but the government levies taxes on income and makes transfer payments with two simultaneous objectives: to keep the relative distribution of income by income-classes constant, and to maintain full employment. The latter objective may require an unbalanced budget; the former would not. The government finances its deficits with the issue of money and abstains entirely from the issue of interest-bearing securities. Neither commercial banks nor a central bank are available for the creation of money. Thus fiscal deficits and surpluses are matched exactly by changes in the money supply.

6. Securities issued by the private sector consist solely of high-grade riskless equities. From assumption (3) above, that the elasticity of substitution between labor and capital is unity, it follows that the aggregate income earned by equities is exactly proportional to national income. In addition, the income expected from equities will be taken as equal to the income currently received from them.

7. The total market value of equities will depend on the stream of income expected from them, and on the rate which the market uses to discount this stream.

The entire system is set forth in four equations, giving investment, consumption, the rate of interest, and a definition of national income:

(1)	$I = a.dY/dt - b.dr/dt + A$	Investment
(2)	$C = c(Y + T) + d(KY/r + gM)$	Consumption
(3)	$r = f(Y/M) + r_0$	Interest rate
(4)	$Y = C + I$	National income

The first equation states that aggregate investment depends on the rate of change of income (dY/dt), on the rate of change of the interest rate (dr/dt), and on other forces (A) which are treated as autonomous. Among the latter may be included access to new resources, demographic changes, and alteration in government policy. Not included are innovations, because the level of technology is given. One can assume that individual investment decisions are compounded from all three

elements, but that investment in different sectors is influenced to different degrees by each. The coefficients in the equation represent an average for investment over the entire economy.

Net investment is a function of the rate of change of the interest rate, rather than of its level. This is true because the stock of capital required in equilibrium will depend on the amount of labor employed and on the rate of interest. The magnitude of the capital stock will be adjusted so as to equate its marginal product with the interest rate. Each reduction of the interest rate (with given employment of labor) leads to a one-time increase of capital. Therefore only a continuous reduction of the interest rate can bring about continuous net investment.

The second equation makes consumption a linear function of disposable income $(Y + T)$ and of household wealth $(KY/r + g\bar{M})$. T represents the excess of transfer payments over tax receipts; when T is positive disposable incomes exceed factor income. The wealth of consumers consists entirely of equities and cash. To take a simple linear relation between consumption and wealth in the aggregate is not inconsistent with the proposition that age and variable income expectations influence the wealth-expenditure relation for single households.[1] We shall assume that the average age of households remains constant, and that the distribution of household incomes above and below expected incomes is constant. From assumptions (6) and (7), the market value of equities can be written as a constant times national income, and discounted by the market rate of interest. More exactly, KY is the expected income stream accruing to equities; and the appropriate discounting formula for a perpetual income stream is $1/r$.

KY/r is not directly related to the physical stock of capital. For Y is not a constant fraction of the capital stock at full employment, as the proportion of capital to labor may vary. Moreover, the economy may not always be at full employment; and the expected stream of income to equities is discounted at a variable rate of interest. It is even conceivable that the stock of capital might continue to grow for a short period, through autonomous forces, while national income remained constant. In this event the value of equities would remain unchanged as long as the interest rate were held constant.[2]

[1] See in particular F. Modigliani and R. Brumberg, "Utility Analysis and the Consumption Function: An Interpretation of Cross-Section Data," in *Post-Keynesian Economics*, ed. by K. K. Kurihara (London, 1955), pp. 388-436.

[2] Equities are used in order that household wealth will reflect changes in property income without requiring any change in the number of securities issued. I first saw this device used in the article by L. A. Metzler, "Wealth, Saving, and the Rate of Interest," *Jour. Pol. Econ.*, Apr. 1951, LIX, 93-116. However, Metzler's purpose was to leave real wealth unaffected by changes in the general price level, whereas we assume the price level

The only additional form of household wealth is money created by the government through budgetary deficits. It is convenient to assume that a constant proportion (g) of the money supply (M) is held by households, the rest being in the hands of business firms.

The third equation states that the interest rate depends on the ratio of national income to the money supply, subject to the constraint that there is a minimum level, r_0, below which the rate can not fall. The fact that the rate of interest varies not only with the ratio of income to the money stock but also with the supply of securities relative to money (for portfolio balance), is taken care of by the fact that the supply of equities (as measured by the expected income accruing to them) varies with income itself.

However, if our system included a central bank which purchased and sold securities on the open market, it would no longer be true that the supply of equities would vary only with income. A change in the supply of equities would alter the proportion of income consumed, and thus also the interest rate required to maintain full employment. Consequently, creation of money through open-market operations has a different effect on growth equilibrium then creation of money through the public budget. This proposition was first demonstrated by Metzler, but it can be proven in simple fashion by means of our model.[3]

The consumption and interest equations will be altered to read:

$$C = c(Y + T) + d\left(\frac{KY - Q}{r} + gM\right) \tag{2'}$$

$$r = f(Y/M) + m\left(\frac{KY - Q}{M}\right) \tag{3'}$$

The new variable, Q, is the amount of equities held by the central bank and acquired through open-market purchases. Like the equities in the hands of private holders, it is measured by the stream of expected income. The additional term in equation (3′), $m\left(\frac{KY - Q}{M}\right)$ (where m is a constant), reflects the portfolio-balance requirement for households, when both money supply and security supply change. Households, at any given rate of interest, will wish to decrease their cash holdings whenever their security holdings are reduced, in order to keep

to be fixed. The relation of household wealth to national income is more complicated when it consists of bonds, real estate, mortgages, and cash, as well as equities, and when households have debt. However, I have argued elsewhere that the main (but not the only) determinant of household wealth is still national income. The reader is referred to "Government Debt as a Generator of Economic Growth," *Rev. Econ. Stat.*, May 1957, XXXIX, 183-92, for a discussion of these problems.

[3] See Metzler, *op. cit.*

the desired balance between the two assets. The market value of equities purchased by the central bank is Q/r, and $\frac{KY - Q}{r}$ is the value of those left in the hands of the general public. Q/r and M will increase by approximately equal amounts whenever the central bank makes an open-market purchase. By equation (3′), the interest rate falls because both (Y/M) and $\frac{KY - Q}{M}$ diminish. By equation (2′), C increases because, while Q/r and M increase equally, r falls and thereby raises the market value of those securities remaining in the public's hands.

Now if we wished to return to the initial higher rate of interest, without any further change in the private holding of securities, this could be brought about by a rise in the general price level, which would reduce the real value of existing cash balances without affecting the real value of equities. Alternatively, it could be achieved by reducing the money supply by means of a one-time budgetary surplus. We shall take the latter course because it is consistent with our stable-price assumption made at the outset. In the new position the term $\left(\frac{KY - Q}{r} + gM\right)$ is smaller than before the open-market purchase. This must be so because $KY - Q$ has not been restored to its original value, and the amount of M needed to return r to its initial value is less than originally. Expressed differently, portfolio balance requires a smaller cash holding to match the smaller holding of securities by households.

The consequence of reduced household wealth is, by equation (2′), less consumption and more saving. Therefore, more investment is required for full employment than at the outset, and this in turn calls for a reduction of the rate of interest.

II. *The Secular Growth Problem*

The secular growth problem will here be defined in a narrow sense: that of keeping the warranted rate of growth of output adjusted to the natural rate. The warranted rate is one which just keeps producers satisfied with their production and investment plans. This condition means that expansion of capacity always is followed by the expected increase of output, and there is no unintended investment or disinvestment. The natural rate is more difficult to define for a situation with substitutability between factors. With perfect complementarity of factors, the natural rate is given by the rate of increase in supply of

the factor which increases most slowly. When the production function is such that further substitution between factors, in response to relative changes in their prices, is always possible, the natural rate of growth is such a rate as keeps all the factors fully employed. It will be intermediate between the ratio of increase of the factors which have the greatest and smallest rates of growth in supply.

We now examine the role of factor substitution in adjusting the warranted and natural rates to each other. In order to concentrate on this feature of our model we shall neglect for the moment the forces in equation (2) that may alter the share of saving out of income by assuming that the saving-income ratio is held constant.

Suppose that, of the two assumed factors, the supply of labor is initially increasing more slowly than the stock of capital. Output will then be increasing at a rate somewhere between the rates of growth of labor supply and capital stock. But equation (1) shows that the increase of capital can be more than proportional to the growth of income only if the interest rate is falling, or if, temporarily, autonomous forces are sufficiently great. According to equation (3) a falling interest rate can be brought about by increasing the money supply faster than income. But the interest rate can only fall to r_0. Once this point is reached, the capital stock will again become a constant multiple of income and increase only in the same proportion as income. But the growth of capital can then no longer pull the rate of output growth above the growth rate of the labor supply. The three rates expressed in percentage terms must therefore reach equality at the growth rate for labor, which is then the natural growth rate.

An interesting problem now arises in connection with the warranted rate which can best be described as a mathematical property of some growth functions. In growth models it is commonly assumed that saving is a constant proportion of income. Since saving and investment are equal, the warranted rate of increase in the capital stock must also be proportional to that of national income. But the capital stock itself behaves as the integral of investment, which, as we saw, is proportional to income. Now for many simple growth functions the integral will have a power index greater by one than the function itself.[4] Consequently, the capital stock must in such cases outgrow national income. A fortiori, it must also outgrow the labor supply. This

[4] For example, if $Y = Kt$, t being time and K being a constant, $\int^{t} Ydt = \frac{Kt^2}{2}$; if $Y = Kt^n$, n also being a constant, $\int^{t} Ydt = \frac{Kt^{n+1}}{n+1}$

disparity can be accommodated as long as a declining interest rate induces further substitution of capital for labor. When the limit of substitution has been reached, the growth of capital becomes excessive and a decline of investment causes a downturn of income. Thus, a limited factor substitutability has not saved us from an eventual clash between the warranted and natural rates of growth. The former must increase and the latter must decrease from the common equilibrium rate, once factor substitution has come to an end.

There is an exception where this problem may not arise, and that is the case where the limiting factor, labor, happens to increase over time at an exponential rate.[5] As before, the growth of total output would slow down and eventually attain the rate of increase of the labor supply. Net investment, being proportional to income, would increase at the same rate. The capital stock, as before, would grow as the integral of income; but the integral of an exponential function is proportional to the function itself, and so the capital stock would grow at the same rate as income. This alone does not assure that the warranted rate would be adjusted to the natural rate; for the equilibrium capital-output ratio may be too small in relation to the savings propensity, and the warranted rate may therefore be too great for the natural rate. However, if the range of substitutability is great enough, the capital-output ratio can be adjusted upward to the extent necessary to align the two rates.[6]

A priori, there is little basis for preferring one growth function over another, when considering the growth in time of the labor supply. However, in a world with limitations of space and primary resources, it may be more reasonable to assume that the labor supply grows at some rate which is less than exponential. In such a case the problem outlined above, of redundant capital, would eventually appear when substitution possibilities reach their limit.

It is also interesting to examine briefly the situation opposite to the foregoing, where labor is redundant because of an initial deficiency in the supply of capital. Assume that either technical limitations or a floor under the real wage prevents more than a fraction of the labor supply from being employed with the existing stock of capital. Such a

[5] $Y = bKe^{bt}$ is an example of an exponential function (with b another constant). Its integral is Ke^{bt} which increases with time at the same relative rate as Y itself. This is the case dealt with at some length by Robert Solow in "A Contribution to the Theory of Economic Growth," *Quart. Jour. Econ.*, Feb. 1956, LXXX, 65-94.

[6] Let V be the capital stock. Then, corresponding to equation (1) and neglecting autonomous investment, $\frac{V}{Y} = a - \frac{br}{Y} \cdot a$ is thus the maximum equilibrium ratio of capital to labor, as r diminishes and Y increases over time.

situation may describe an important part of the difficulties of underdeveloped areas.

Assume, as before, that net saving is a constant share of income, although it may be a very small one. Since the supply of labor is no limitation, the path of actual and warranted output is an exponential one. The rate of growth could not be slower than this without the capital stock growing more rapidly than output and thus not being fully utilized at the constant rate of interest prevailing in this situation. Only the exponential rate permits capital stock and output to grow at exactly the same rate. With an excessive supply, labor is likely to be constant, or to increase only at a less-than-exponential rate. Eventually, but perhaps after a great time lapse, capital will have caught up with labor and absorbed it all in the productive process. From that point onward, the problem will become that of the advanced countries discussed above, with capital tending to become the excessive factor.

Thus it appears that oversupply of labor, so pressing a problem in some parts of the world, may be only a phase, if an extended one, in the development of these areas. This appears true even under the pessimistic assumption of constant technology made throughout this paper.

III. *Monetary Policy Affecting Consumption*

The previous section has consciously neglected some important adjusting forces in our model in order to concentrate on its less familiar aspects. Here we shall summarize the elements affecting the ratio of consumption to national income, as expressed in equation (2). They are three in number: (1) changes in disposable income through changes in T (the public deficit) relative to Y; (2) changes in household wealth through changes in the rate of discount, r, for claims to future income; and (3) changes in household wealth through changes in the money supply (or public debt) not offset by changes in household indebtedness.

Suppose that income grows at less than an exponential rate and that the deficit is a constant proportion of income. Then, by the same argument as above for the capital stock, the supply of money (or the public debt) must grow at a faster rate than income; for the money supply grows in proportion to the integral of income. Consequently, the interest rate will fall continuously until it nears r_0. Household wealth then increases relatively to national income for two reasons: the capitalized value of expected income increases, and household cash holdings grow more rapidly than income. Once the interest rate has come close to its lower limit, the second force alone will operate. Consumption will in consequence increase, and saving decrease, relatively to

national income. By this means, the warranted rate of growth can be diminished to whatever extent necessary to bring it into line with the natural rate. What factor substitution fails to accomplish is thus brought about by the effect of monetary factors on consumption.

To summarize, we may say that the introduction of factor substitution has had rather disappointing results, except under special assumptions as to rates of growth and limits to substitution of factors. Consequently, adjustments of the interest rate would seem to have limited effect in dealing with the secular growth problem as defined in the present model. Stability of growth still depends heavily on the proper use of the public budget to adjust disposable income and household wealth.

CED'S STABILIZING BUDGET POLICY AFTER TEN YEARS

By WALTER W. HELLER*

The year 1957 is an appropriate time to take stock of the prescription of the Committee for Economic Development for the role of federal tax policy in economic stabilization, not only because tenth anniversaries are good occasions for stock-taking, but more important because recent experience in positive monetary and fiscal policy calls into question some of the assumptions and judgments on which CED's "stabilizing budget policy" is based.[1] Recent modifications of the original CED formula, together with CED's current re-examination of its entire monetary-fiscal policy, also suggest that a reappraisal of the stabilizing budget policy may be timely.[2]

A review of CED's tax policy for economic stability is a review of the dominant theme in postwar fiscal-policy thinking. A dozen years ago, in view of depression and war experience and under the intellectual impact of Keynes, Hansen, and Lerner, it appeared that the discredited dogma of annual budget balancing might be replaced in the affections of most economists—even if not in the halls of Congress and the White House—by a policy of compensatory or functional finance. But instead, by 1949, the doctrine of automatic flexibility largely held sway—a doctrine which confines the role of budget policy in economic stabilization to the contribution it can make within the limits of (1) marginal budget balancing, (*i.e.*, matching of new expenditures with new tax revenues even though the budget *as a whole* may be unbalanced except at some agreed high level of national income), and

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[1] The basic document in which the stabilizing budget policy was first enunciated is *Taxes and the Budget: A Program for Prosperity in a Free Economy* (New York, Nov. 1947). Restatements are available in the 16 national policy statements and other pamphlets on fiscal and/or monetary policy issued by CED since 1947. The latest restatement is in *The Budget, the Economy and Tax Reduction in 1956*, issued June 1956. The May 1957 statement, *Tax Reduction and Tax Reform—When and How*, contains no explicit statement or application of the stabilizing budget policy.

[2] Having toiled rewardingly in the CED vineyards as a consultant and technical advisor on budgetary policy, and having been among the worshipers at the shrine of fiscal automaticity, I should perhaps note that this reappraisal has not been entirely unagonizing.

(2) the deficits and surpluses automatically generated by fluctuations in the level of national income (augmented by discretionary changes only in "serious" recessions or inflations).

What turned the main stream of economic-policy thinking so strongly towards automation of fiscal policy? Intellectual antecedents are not hard to find in the writings on built-in flexibility of Gunnar Myrdal, A. G. Hart, Alan Sweezy, Beardsley Ruml, and even Alvin Hansen in the late 'thirties and early 'forties.[3] But what pushed their efforts to the center of the policy stage and led to the de-emphasis of discretionary compensatory finance? Among the factors that played a major role were: (1) the expansion of the federal budget to a size which made automatic flexibility quantitatively important; (2) the shift of emphasis from secular stagnation to the problem of cyclical fluctuations, a shift which gave a higher priority to flexibility and reversibility in policy; (3) the disappointing record of the immediate postwar economic forecasts that seemed to undercut the foundation on which discretionary policy must rest; and (4) the attractions of a budgetary policy based on automaticity and marginal budget balancing as a pragmatic middle ground on which a consensus of otherwise widely divergent groups might be reached.[4]

Among professional economists, a remarkable degree of consensus on underlying fiscal strategy was, in fact, reached. After issuance of the basic CED statement in 1947 and important further explorations of built-in flexibility and automatic policy by A. G. Hart, Richard Musgrave and Merton Miller, and Milton Friedman, this trend of thinking culminated in the "Princeton Manifesto" of September 1949. In it, 16 economists of such widely differing persuasions as Howard Bowen, Howard Ellis, J. K. Galbraith, James K. Hall, Paul Samuelson, Sumner Slichter, Arthur Smithies, and Jacob Viner agreed unanimously on a set of policies centering on built-in flexibility buttressed by more or less automatic supplements. The essence of their recommendations was embodied in the Douglas subcommittee report early in 1950.[5]

[3] For a useful survey of this subject, see N. F. Keiser, "The Development of the Concept of 'Automatic Stabilizers'," *Jour. Fin.*, Dec. 1956, XI, 422-41. His survey impresses one with the multiplicity of antecedents which provided the raw materials of the CED policy. However, to CED and its present research director, Herbert Stein, must go most of the credit for developing the specific rationale by which fiscal policy could simultaneously serve two masters, *i.e.*, economic stabilization and budgetary discipline.

[4] For an analytical discussion of the background, content, and rationale of CED's policy, see Herbert Stein, "Budget Policy to Maintain Stability," in *Problems in Anti-Recession Policy,* Committee for Economic Development (New York, 1954).

[5] Joint Committee on the Economic Report, *Monetary, Credit and Fiscal Policies,* 81st Cong., 2nd Sess., Sen. Doc. No. 129 (Washington, 1950), esp. pp. 11-17. "Federal Expenditure and Revenue Policy for Economic Stability," the statement of the 16 economists who had been convened by the National Planning Association at Princeton (in September, 1949), was published in *Am. Econ. Rev.*, Dec. 1949, XXXIX, 1263-68.

It should be noted that the Princeton statement, for all its automation of fiscal policy, fell short of a complete victory of rules over authority. It left considerable room for discretion in the light of "recent events and the outlook for the near future." For example, it provided that under conditions of unemployment and deflation, tax increases to match new expenditure programs should be suspended until they could be put into effect without impeding recovery. In addition, it urged that the possibilities of "formula flexibility" be explored since automatic flexibility was no more than "a first line of defense." The statement also called for "more strenuous fiscal measures" "where there is a definite expectation, justified by events, of serious recession or inflation . . .," a prescription which left considerable latitude for differences of interpretation among the signers. Thus, although the Princeton statement represents the high-water mark of the doctrine of fiscal automaticity (among economists, at least), it did not go as far as CED's original stabilizing budget formula in relying on automatic stabilizers.

I. *The Stabilizing Budget Formula and Philosophy*

The main elements of current CED fiscal doctrine as presented, applied, and modified in a series of policy statements since 1947 may be summarized as followed:

1. *The Balanced Budget Rule.* (a) Tax rates shall be high enough to balance the cash budget at high employment (defined as employment equaling 96 per cent of the labor force)—the rule of "high-level balance";[6] and (b) additional expenditure programs shall be matched by additional taxes (in terms of their high-employment yield) to maintain this balance at high employment—the rule of "marginal budget balancing." These rules also require that cash surpluses generated by economic growth be eliminated by tax reduction.

2. *Automatic Flexibility.* Surpluses and deficits generated by inflationary and deflationary deviations from high employment should be welcomed as stabilizing influences, but tax rates should not be altered to magnify these surpluses and deficits as an offset to moderate economic fluctuations.

3. *Nonautomatic Deviations.* Given severe inflation or unemployment, either at hand or clearly in the offing, discretionary changes in tax rates (and, more reluctantly, in expenditure programs) may be made to enlarge the deficits or surpluses beyond the levels generated

[6] The original 1947 formula called for a $3 billion surplus at the agreed high level of employment, but implicitly in 1952 and 1953 and explicitly in 1954, CED changed its fiscal target to a balanced cash budget at high employment. Since the choice of a surplus, balance, or deficit as the high-employment target is an arbitrary one, a more generalized label such as "a fixed revenue-expenditure relationship at high employment" would be more accurate.

by built-in flexibility. Recessions or inflations falling short of this "severe" category may call for some adjustments in the effective dates of tax changes designed to maintain high-level balance.

4. *Other Exceptions*. Large, temporary bulges of expenditures need not be covered immediately by tax increases. Surpluses generated by economic growth or expenditure reductions should not be converted into tax reductions until they are large enough and certain enough "to give room for significant tax reform" without danger of creating deficits during prosperity.[7]

5. *Relation to Other Policies*. "The stabilizing budget policy . . . should be regarded as part of an overall financial policy for greater economic stability, in which not only budget policy but also monetary policy, debt management, federal loans and guarantees have important functions."[8]

What assumptions underlie these policy prescriptions? Most basically, CED policy rests on the assumption that human frailties and institutional deficiencies—reflected in imperfections and errors of forecasting, slow-moving executive and legislative processes in taxation, and a tendency of human beings to be timid, unpredictable, and biased towards inflation—make it necessary to utilize automatic rather than discretionary fiscal changes in national stabilization policy. As Herbert Stein put it, "The Committee apparently felt that this plan embodied all that fiscal policy could do—in the existing state of affairs—to maintain stability. While 'stronger' programs could be easily conceived, the Committee argued that these stronger programs are likely to be unstabilizing, because of errors of forecasting, lags, and biases in the decision-making process."[9]

Second, even if human and institutional factors were favorable to countercyclical manipulation of tax rates, the desirable "disciplinary effect" of the marginal-budget-balancing rule would still argue for restricting the ordinary scope of fiscal policy to its built-in flexibility. This restriction permits taxes to play their traditional role as a restraint on expenditures.

CED policy appears to reflect two additional articles of faith. The first is that stabilization policy, if forced to choose, should give a relatively strong guarantee of price stability and a relatively weak guarantee of full employment, lest it promote secular inflation.

The second is that heavy reliance on monetary controls for economic stabilization is desirable not only because of their *effectiveness* as a tool for stabilizing aggregate demand (an economic judgment) but

[7] CED, *The Budget, The Economy and Tax Reduction in 1956* (New York, 1956), p. 7.

[8] *Ibid.*, p. 6.

[9] Stein, *op. cit.*, p. 87.

also because their *effects* on resource allocation and income distribution are preferred to those of a more aggressive use of fiscal policy, given our present and prospective tax-expenditure structure (a value preference).

II. *The Issues of Neutrality and Discretionary Action*

In evaluating the stabilizing budget policy, one should be careful to distinguish between true and false issues. In particular, there may have been some misunderstanding on the question of budget neutrality and the role of discretion in CED's policy.

Neutrality. First, those who espouse high-level balance and marginal budget balancing cannot claim (nor does CED claim) that a balanced cash budget will be neutral in its impact on aggregate demand at high employment nor that balanced-budget increments will be neutral at whatever level of employment they are introduced. It is not surprising that there should be misunderstanding on this point since a policy designed to run a surplus above a "satisfactory high employment" level and a deficit below that level may *seem* to say that the budget is neutral *at* that level. But several considerations quickly make it clear that balance is not at all synonymous with neutrality.

Only a brief reminder of multiplier theory is needed to establish this point. The somewhat battle-scarred "balanced budget theorem" makes clear (1) that matched increments of taxes and factor-purchase expenditures are very likely, if not certain, to have an expansionary effect, and (2) that this effect will vary with consumption propensities and with government expenditure leakages via imports, purchases of capital assets, and the like.[10] Or, turning from marginal to total budgets in terms of high-level balance, we are long since aware that different types of expenditure activity and different types of revenues may have different multipliers. There is no reason to believe that the multiplied income effects of the two sides of the budget will balance each other just because revenues and expenditures happen to be in balance. Neutrality would require attaching a multiplier to each category of taxes and expenditures and then balancing the two sums of the multiplied products.[11]

[10] For a good bibliography on the subject and for the latest rounds in the controversy on this theorem, see W. J. Baumol and M. H. Peston, "More on the Multiplier Effects of a Balanced Budget," *Am. Econ. Rev.*, Mar. 1955, XLV, 140-48, and the "Comment" by Alvin Hansen, together with their "Reply," *Am. Econ. Rev.*, Mar. 1956, XLVI, 157-62.

[11] For an interesting attempt to estimate the initial demand effects of various broad classes of federal expenditure and revenues, see Arthur Smithies, "The Impact of the Federal Budget," *Rev. Econ. Stat.*, Feb. 1947, XXIX, 28-31. See also A. H. Conrad, "The Multiplier Effects of Redistributive Public Budgets," *Rev. Econ. Stat.*, May 1955, XXXVII, 160-73.

At a cruder level of budget definition, one encounters significant year-to-year shifts in budget coverage and timing which upset the relationship between the size of the federal cash surplus or deficit and the size of federal subtractions from or additions to private-income flows. For example, a transfer of the financing of certain farm price-support operations from the budget into the banking system via "certificates of interest" reduced recorded federal expenditures and deficits by over $1 billion in fiscal 1954. The "Mills Plan" for speeding up corporate income-tax payments fattened federal receipts by $1 to $2 billion a year for five years without changing corporate-tax liabilities. Year-end manipulations can shift significant amounts of revenues and expenditures from one year to another. For example, the devices of retarding the processing of tax payments and accelerating the payment of certain bills have been used to shift hundreds of millions of dollars of budget surplus from one year into the next. The shifting content of the budget as an economic yardstick of government activity not only interferes with any concept of budget neutrality but poses special problems for the managers of federal fiscal policy. If those managers are tightly tied to a rule of high-level budget balance, they will have less flexibility to adjust tax levels to compensate for these budget vagaries, thereby throwing an added burden on monetary policy as the economic adjuster.

Finally, federal surplus and deficit figures fail to reflect adequately the far-flung federal credit programs, which have an important impact on private income and investment. Budget estimates for 1958 show net expenditures of only $1.4 billion for these programs. Yet total new commitments in the form of loans, investments, guarantees, and insurance will exceed $21.0 billion. Outstanding federal guarantees now cover over $50 billion, or 13 per cent, of total private debt.[12] Although largely outside the budget, federal credit programs have a positive role to play in economic stabilization (as CED policy recognizes).

Discretion. A second issue is that of implicit and explicit discretion involved in the stabilizing budget policy. Can this policy, and does it, live by rules alone? Does it draw a defensible line between rules and authority? Samuelson argues persuasively that there is no such thing as a truly automatic mechanism in fiscal policy.[13] Not only is the mechanism established, continued, modified, and abolished by discretion, which rules out any "notion of a genuine difference of kind" but, more

[12] The Budget of the United States Government for the Fiscal Year 1958, *Budget Message of the President and Summary Budget Statements* (Washington, 1957), pp. 1103-05.

[13] P. A. Samuelson, "Principles and Rules in Modern Fiscal Policy: a Neo-Classical Reformulation," in *Money, Trade, and Economic Growth* (New York, 1951), pp. 162-66.

than this, "efforts to establish a logically rigorous difference of degree have not met with success." This does not rule out the pragmatic case for pursuing the kind of discretionary action which an automatic mechanism provides, but it does do violence to any concept that a non-automatic policy is uncertainly managed by fallible men while an automatic fiscal policy is divinely guided by infallible rules.

There are also many explicitly discretionary features in CED's policy. It is left to human judgment to decide when a recession is so moderate that one leaves tax rates competely untouched, when it has reached the point that makes it advisable to suspend the effective dates of tax increases, and when it is "serious" or "severe" enough (CED does not define these terms) to call for outright compensatory rate changes. There are even more difficult decisions on the inflationary side: when is the revenue surplus clearly a product of economic growth which threatens to retard the rate of further growth, and when is it a welcome contribution (perhaps even too small a one) to the fight against inflation?

CED's fiscal formula provides these general guidelines on a surplus at full employment: if employment does not exceed 96 per cent of the labor force, a substantial surplus signals tax reduction, but if employment rises above 96 per cent, one should hold the tax line against inflation. But what if 96 per cent is just a point on a clearly rising trend of employment, or if it is accompanied by a rising price level? Should one simply project the existing employment and price levels into the future, follow the formula, cut taxes, and leave the rest of the job to monetary policy?[14]

[14] In two recent policy statements (*Tax Policy in 1956,* Dec. 1955 and *The Budget, The Economy and Tax Reduction in 1956* June 1956), CED interpreted its rule in a setting of roughly 4 per cent unemployment, rising price levels, and prospective budget surpluses of $3 to $4 billion. It called in effect for elimination of the surplus. In its December 1955 statement (p. 5), CED said "Although the actual figure may turn out to be more or less than this, we believe an assumption that taxes can be cut by $3 or $4 billion is a reasonable basis for considering what kind of a tax reduction program is most desirable." The actual cash surplus for fiscal 1956 was $4.5 billion. In the June 1956 statement (p. 8), CED recommended that decisions on tax cuts (to take effect January 1, 1957) "should be based on a comprehensive, authoritative review of the 1957 budget prospect"; the Budget Bureau's *Mid-year Budget Review* estimated the fiscal 1957 cash surplus at $3.7 billion. Apparently, tax cuts of this magnitude were felt to be justified even in the face of incipient inflation on grounds (a) that the transition from a non-CED policy to the CED formula required elimination of the budget surplus at 96 per cent employment and (b) that additional inflationary pressure generated by moving onto the CED track was to be offset by a tightening of monetary policy, thus combining a less restrictive budget policy with a more restrictive monetary policy. While this was perhaps a correct application of the CED formula (though unemployment figures hovering between 3.2 and 3.7 per cent of the labor force in the last half of 1955 raise some doubts on this score about the late-1955 recommendation), one may question whether it was a wise recommendation in the light of the facts available *at that time* (*i.e.*, not just in retrospect).

Two considerations suggest that CED's generally affirmative answer is not as doctrinaire as one might infer from overemphasis on the automaticity of the stabilizing budget rule. First, in a current study of the problem of inflation, CED is considering this question: does the economic record of the postwar decade establish reliable clues to the "terms of trade" between the level of unemployment and the rate of increase in the price level? Is 4 per cent the magic number that is consistent with a 0 per cent price rise? Or are the terms of trade such that insistence on a 3 per cent unemployment target will bring about a 1 to 2 per cent price rise per annum? Once these terms of trade have been established empirically, of course, one still has to make a choice between the higher level of employment with the greater inflation potential and the lower level with the greater likelihood of price stability.[15]

Second, CED has opened the door slightly to further exercise of discretion in its year-to-year applications of the rule. For example, concern over inflation in 1955 apparently influenced CED's choice among alternative budgetary predictions in a direction indicating no tax reduction at that time, and in 1956 led it to suggest that the effective date of proposed tax cuts be deferred to January 1, 1957.

Given this much discretion in the management of its fiscal formula, why does CED stop so far short of full discretion? Is it justified in assigning to fiscal measures an essentially passive role and to monetary measures a decidedly active role in stabilization policy? The search for an answer leads us to consider the forecasting issue, the relative effectiveness and impacts of monetary and fiscal policy, and the expenditure discipline of CED's budget-balancing rule.

III. *Economic Forecasting and Diagnosis in Stabilization Policy*

Deficiencies in our ability to forecast have loomed large in CED's case for automaticity in budget policy coupled with heavy reliance on flexible credit policy.[16] But forecasting is only one element of a broader issue. The question is not merely (a) whether forecasts of future economic conditions are reliable enough to permit discretionary preventive action but (b) whether diagnoses of current business conditions and

[15] Note that CED has long since abandoned its initial 1947-48 position of trying to roll prices back to a pre-existing (lower) level. As introduced in 1947 and applied in recommendations to the Senate Finance Committee in 1948, the CED formula used the early-1947 price level in its calculations of high-employment national income, federal expenditures, and revenues. But by 1949, it became apparent that a roll-back of prices to 1947 would involve severe tax rates and serious threats to full employment. Starting in 1949, CED has employed the current price level as the basis for its calculations. The effect of this is (1) to accept past inflation as a *fait accompli*, but (2) to assume that future inflation will be prevented by appropriate stabilization policy (or by developments in the private economy).

[16] See, for example, CED's *The Stabilizing Budget Policy* (New York, 1950), pp. 5-6.

movements should be used to guide tax and expenditure policies as instruments of discretionary remedial action.[17] CED does not eschew this "comprehensive look" at the economic situation, but, except in severe recession or inflation, it permits only monetary policy to respond to and be guided by the resulting diagnosis.

What conditions would be sufficient to make a defensible case for letting fiscal policy also respond to the "comprehensive look" rather than keeping it on a straight and narrow path with the aid of blinders attached by the CED rule? The first is that information excluded from the decision-making process under the rule would, if granted entry, clearly call for remedial or preventive fiscal action where the CED rule calls for inaction or contrary action. The second is that the information be reasonably complete and reliable.

As suggestive rather than conclusive demonstrations that these conditions may be met, the following four sets of situations which seem to find counterparts in postwar experience may be postulated. All four are presumed to occur in a setting of roughly 96 per cent employment and short of the boundary line labeled "serious inflation."

1. One case combines ample capital capacity, gently rising consumer demand, and strong pressures for public, especially state-local, construction; the other combines limited capital capacity, strong consumer demand, and little pressure for public construction. The first case might well call for credit restrictions, a balanced federal-state-local budget, and some federal tax reductions or tax sharing to put more fiscal resources at the disposal of state-local government; the second suggests less monetary restrictions, federal budgetary surpluses, and less transfer of fiscal capacity to state-local government.

2. In one case the 4 per cent unemployed group consists of regular members of the labor force pressing for a job, while in the other the group consists largely of people who are only loosely part of the labor force (elderly persons, housewives, etc.), and who less adequately satisfy employer needs. The second case may require more restrictive budgetary policy than the first.

3. In one case, "privately financed deficit spending on government account" (*e.g.*, business borrowing to cover construction and production costs incurred on the basis of military orders) may be large and rising as in 1951-52, in another, small and falling, as in 1956-57.[18]

[17] In putting the point this way, I am not unaware, first, that remedial action for current economic ills must either be appropriate to future economic circumstances or be quickly reversible and, second, that the discussion here sidesteps for the moment the question of how rapidly tax and expenditure policy can respond to the economic information and diagnosis we put at its disposal.

[18] For a development of this concept and statistical estimates of the magnitudes involved,

The former situation might call for a larger federal surplus, the latter, a smaller one, than CED's rule.[19]

4. Most cases of inflation will satisfy the traditional assumption (accepted by CED) that with stable tax rates and expenditure programs, the federal surplus will automatically grow and thereby dampen inflationary pressures. But the possibility of a disturbing alternative case has been raised by 1957 experience. In this case, the type (or stage) of inflation may be such as to expand federal expenditures for military procurement, public construction, and government salaries faster than federal revenues expand. The resulting decline in the surplus might be the signal for a tax increase if inflationary pressures were diagnosed as persistent.[20]

On the recession side, the need for going behind the aggregates as a basis for determining the appropriate fiscal policy can also be illustrated. R. A. Gordon makes a convincing case for early diagnosis of a moderate downturn to determine whether it is (1) a "pure" minor recession calling for reliance on automatic stabilizers, easy money, and perhaps discretionary action to liberalize unemployment payments and accelerate light public works expenditures or (2) an "intermediate" or "hybrid" recession calling for the "fullest scope of the conventional instruments of stabilization policy. . . ."[21]

The foregoing discussion serves to illustrate the case, conceptually, for discretionary adjustment of fiscal policy to take account of a far broader range of information than is admissible under the CED rule. But one should also confront the forecasting issue on CED's own terms as a basis for preferring its rule to a managed compensatory fiscal policy.

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see A. G. Hart, "Fiscal Policy Implications of Reductions in Appropriations for Fiscal 1958," *Fiscal Policy Implications of the Economic Outlook and Budget Developments: Hearings before the Subcommittee on Fiscal Policy of the Joint Economic Committee* (Washington, 1957), pp. 72-76.

[19] Whether one should consider such induced deficits as a manageable stabilization-policy variable or as part of the complex of developments in the private sector to be counterbalanced, if necessary, by budgetary and monetary policy depends in good part on their controlability. From Hart's analysis one may infer that while they may be controlable by military authorities, they are not likely to be controlable by stabilization authorities.

[20] To test the traditional and alternative assumptions on inflation's budgetary impact calls for analysis and, to the extent possible, measurement of the relative behavior of government resource-using expenditures, transfer payments, and various kinds of taxes under the impact of different types and stages of inflation.

[21] R. A. Gordon, "Types of Depressions and How to Combat Them," *Policies to Combat Depression*, National Bureau of Economic Research (Princeton, 1956), pp. 13-16. Gordon's analysis leads him to conclude that "Discretionary action, extending beyond the field of merely monetary policy, is necessary in all except relatively pure minor cycles" (p. 12).

First, managing even an "automatic" budgetary policy involves many explicit and implicit forecasts. To calculate revenues and expenditures under existing programs in terms of the "assumed high level of employment" requires assumptions or projections (forecasts?) of price levels, labor force, and productivity. Projection of the current price level into the future involves obvious hazards, and the jerky rate of gain in productivity (*e.g.*, fast in 1955 and slow in 1956) may make reliance on average rates of gain misleading for any given year. Even more vexing is the forecasting of federal expenditure levels, a vexation that no formula can escape.[22] Recent official budget estimates made well along in a particular fiscal year have turned out to be several billions wide of the mark. It may well be that CED's rule denies the fiscal policy-making process access to other economic variables which can be forecast within ranges of tolerance as narrow as, or even narrower than, those which apply to its budgetary forecasts.

Second, is economic forecasting as slender a reed as it appeared to be 10 years ago? No conclusive evidence is available to prove that forecasting techniques are now a thoroughly reliable basis for discretionary stabilization policy. But many new or improved forecasts of important segments of the economy, such as plant and equipment outlays, are now available. The Council of Economic Advisers does not hesitate to invoke "prospective economic conditions" as a basis for discretionary judgments to hold the line on federal taxes.[23] Qualified observers judge our short-term forecasting record as having operated "not too unsuccessfully" in recent years.[24] Guarded optimism as to the future of economic forecasting seems justified.

Third, it does not *necessarily* follow that present limitations on our forecasting abilities strengthen the case against flexible, discretionary tax action. It can be argued, on the contrary, that these limitations should lead policy-makers to bend every effort to make tax and expenditure devices more readily adjustable to unfolding economic developments.[25] CED prefers monetary policy on this score because it

[22] CED's formula involves the additional demanding problem of differentiating among (1) those federal expenditure changes which are not to be matched by tax changes, namely, expenditure responses to fluctuations in the level of income and employment; (2) those which are to be matched, namely, the increases or decreases in government programs and the noncyclical expansions or contractions of open-ended programs; and (3) those which fall under the intermediate heading of "large, temporary bulges of expenditure" not requiring fully matching tax increases.

[23] "In view of the budgetary outlook and prospective economic conditions, present tax rates should be continued . . .," *Economic Report of the President* (Jan., 1957), p. 48.

[24] R. A. Gordon, "Stabilization Policy and the Study of Business Cycles," *Am. Econ. Rev.*, Proceedings, May 1957, XLVII, esp. p. 121.

[25] A. G. Hart (*op. cit.*, p. 73) strongly urges new efforts to develop speedy and reversible tax measures, including intrayear adjustments of the witholding rate, to cope with the

can be "reconsidered, changed, and, if necessary, reversed at short intervals," while tax action tends to be slow, intermittent, and difficult to reverse.[26] More progress might be made in overcoming these defects of the taxing process if reliance on fiscal automaticity and monetary manipulation did not remove some of the pressure for action.

IV. *The Relative Roles of Fiscal and Monetary Policy*

The presumed operational superiority of monetary over fiscal policy as a flexible stabilization instrument, especially in dealing with inflationary pressure, requires rigorous re-examination in the light of six years of experience with an unleashed monetary policy and the rising tide of informed criticism based on this experience. Since the preference for monetary policy also involves "the diverse values and objectives that move men,"[27] one needs to go beyond questions of effectiveness to questions of effects.

Time lags. Automatic fiscal stabilizers gain strong support from their superiority with respect to the three familiar lags in stabilization policy: the recognition lag, the administrative lag, and the operational lag. Income-tax collections, unemployment compensation, and similar built-in stabilizers respond promptly to economic events which may take months for the human eye or electric brain to recognize. No legislative or executive body has to intervene to bring them into play. Automatically, the fiscal stabilizers offset between 35 and 40 per cent of a change in gross national product. Yet, while this offset to economic fluctuations is substantial, the effect of automatic stabilizers is more to cushion the shocks of recession and inflation than to set up powerful counterforces. By themselves, they constitute a "tranquilizing budget policy" rather than a truly stabilizing one.

But going beyond these built-in tranquilizers, we promptly come face to face with the issue of the relative behavior of discretionary fiscal and monetary policy in terms of the three lags. This issue, which had in the past been clearly resolved in favor of monetary policy, has been reopened on the basis of new evidence and new thinking. On the recognition lag, both policies suffer the same disability. On the administrative lag, monetary policy clearly carries the day. The basic question is

difficulties of forecasting budget magnitudes, let alone developments in the private economy.

[26] CED, *op. cit.*, 1956, pp. 6-7.

[27] "At any given moment, policy must be based not only on known facts about the nature and operation of the economy, but also on guesses and conjecture and on a balance of the diverse values and objectives that move men," National Bureau of Economic Research, *Financial Research and the Problems of Our Day*, 34th Annual Report (New York, 1957), p. 20.

whether its superiority on this score is more than offset by its inferiority in terms of the operational lag, *i.e.*, the length of time between policy action and the effective impact of that action on the economic situation.

In fiscal policy, we are dealing *directly* with income flows, with definitive and direct action to increase or decrease them. But in monetary policy and debt management, we are dealing only *indirectly* with income flows via impacts on liquidity and asset structure. The large cushion of short-term governments in the hands of banks means that the credit reins do not tighten on bank loans until the banks have disgorged these securities over a period of many months after tight-money policies are instituted (and unfortunately for the next period of inflation, experience suggests that the short-term securities flow back to the banks in times of slack loan demand). These and other factors led Warren Smith to conclude that "the operational lag may be considerably longer for monetary than for fiscal policy, at least in many situations."[28]

Further, the administrative lag in taxation need not always be a long one. Under pressure, Congress enacted $5 billion of additional taxes within weeks after the outbreak of war in Korea and rushed through a $1 billion excise tax reduction in one month in 1954. If one were to add to the scheduled federal excise and corporate income tax reductions now on the statute books an individual income tax component, one would have on the shelf three important potential offsets to recession that Congress could put into effect in a matter of days or at most weeks.[29]

Other operational considerations. Without going into detail one may cite other doubts and questions about the effectiveness of monetary policy that have been raised by close students of the subject. Hyman Minsky shows that restrictive central banking measures and rising interest rates generate institutional changes which increase velocity and decrease liquidity and thereby destabilize the money market. He

[28] W. L. Smith, "On the Effectiveness of Monetary Policy," *Am. Econ. Rev.*, Sept. 1956, XLVI, 588-606.

[29] The Congress in effect created a "shelf" of tax reductions much like the "public works shelf" often urged as an antidepression measure when it legislated automatic expiration dates for some of the tax increases enacted in 1951 (previously March 31, but beginning in 1958, June 30, a date by which the validity of year-end economic forecasts and the nature of the budget picture are much clearer). The conscious development of a broader program of "on-the-shelf" tax reductions has much to commend it. When inflation threatens, the cuts could be postponed as they were in 1955, 1956, and 1957. But when an economic recession or a slowdown of economic growth faces the country, Congress could pull the tax cuts off the shelf or let them come down on the specified date. This would greatly shorten the lag between an economic downturn and positive tax action to counteract it.

concludes, "The asserted asymmetry of monetary policy (that it is effective in constraining an inflation and ineffective in constraining a depression) is not true; monetary policy is of very limited effectiveness both in constraining an inflation and in counteracting a depression."[30]

Relatively stable tax rates as a favorable factor in business expectations are often cited as one of the important advantages of the stabilizing budget policy. But analyses by Ervin Miller and Alvin Hansen lead to the conclusion that the upsetting expectational effects of the large fluctuations in interest rates and capital values required to stabilize the economy via monetary policy are a high price to pay for more stable tax rates.[31]

Canada's recent experience has revealed distressing limitations to the effectiveness of restrictive monetary policy. As in the United States, these limits resulted partly from sales of government securities by banks and the existence of consumer finance and other credit sources outside of the direct reach of central banking policy. In part, the desire to maintain "orderly conditions in financial markets" played a role.[32]

On recent British experience with monetary restrictions, Warren Smith and Raymond Mikesell conclude that "while some of the weakness of British monetary policy is due to peculiar features of the British economy and its monetary system, the episode is indicative of the general limitations of monetary policy."[33]

The disappointing record of recent monetary restrictionism strongly suggests that monetary policy as a curb on inflation is subject to limitations and side effects to which CED (among many others) did not give sufficient weight in determining its relative reliance on fiscal and monetary measures. If this is true, a reappraisal would logically lead to a shift of emphasis toward discretionary tax and expenditure policy unless it could be demonstrated that the deficiencies of monetary policy are more amenable to correction (perhaps by selective credit controls) than those of fiscal policy.

Value preferences. Evidence on the inadequacies of monetary policy may or may not dislodge some of its advocates from their existing positions, depending on how strongly they prefer the patterns of resource allocation and income distribution (by income brackets as well as so-

[30] H. P. Minsky, "Central Banking and Money Market Changes," *Quart. Jour. Econ.*, May 1957, LXX, 184.

[31] Ervin Miller, "Monetary Policy in a Changing World," *Quart. Jour. Econ.*, LXX, Feb. 1956, 23-43; A. H. Hansen, *The American Economy* (New York, 1957), Ch. 3.

[32] Bank of Canada, *Annual Report of the Governor for the Year 1956* (Ottawa, Feb. 1957), esp. pp. 23-36.

[33] W. L. Smith and R. P. Mikesell, "The Effectiveness of Monetary Policy: Recent British Experience," *Jour. Pol. Econ.*, Feb. 1957, LXV, 38.

cial classes) implicit in monetary controls to those implicit in fiscal controls.

The issue was pointedly drawn by Stein and Samuelson recently.[34] While essentially agreeing that we have it within our fiscal-monetary power to achieve reasonable stabilization together with the capital accumulation rate and distributive objectives we desire, they differed sharply in the uses to which they would put monetary and fiscal tools. Stein would use a "faster or slower growth of the money supply" to expand or restrict total demand, thereby allowing us "to determine both the structure of taxes and the total amount of taxes by considerations other than the desired level of total demand" and, in particular, "to choose the tax structure that imposes the least direct interference to investment without fear that such a tax structure may restrict investment indirectly by causing a deficiency of total demand."[35] In contrast, Samuelson would rely mainly on fiscal policy to control aggregate demand. To achieve the goals of high investment, substantial redistribution, and full employment without inflation, he would (1) make investment funds easy and cheap to get by low interest rates and liberal credit programs; (2) impose progressive taxes, and (3) enact tax increases to produce inflation-curbing surpluses.[36]

The important point here is not to choose between these two alternative approaches, but to make clear that they involve fundamental differences in their impact on the structure of our economy and the distribution of income among different income-size and functional groups. Among the effects of the high-tax low-interest policy, for example, would be (1) to promote government capital formation at the expense of private consumption, (2) to lower the relative rewards for less risky as against more risky uses of money, and (3) to offer a net stimulus to uses (like public construction) which could take advantage of the low interest rates without encountering the high tax rates. The opposite policy, judging by recent experience, tends to pinch particularly hard in the field of state and local construction activities, home building, and small business, without noticeably curbing the business capital-goods boom. This is not to say that one set of effects is "right" and the other "wrong." Rather, it signifies that we have an acute problem of social priorities to resolve before we can come to any consensus

[34] Herbert Stein, "Stimulation of Consumption or Investment through Tax Policy," pp. 245-49, and P. A. Samuelson, "The New Look in Tax and Fiscal Policy," pp. 229-34, Joint Committee on the Economic Report, *Federal Tax Policy for Economic Growth and Stability*, Papers Submitted by Panelists Appearing Before the Subcommittee on Tax Policy (Washington, November 9, 1955).

[35] *Ibid.*, p. 248.

[36] *Ibid.*, pp. 232-34.

on the proper combination of monetary and fiscal policy, and consequently, on the basic question of automatic versus discretionary tax and expenditure policy.[37]

V. *Expenditure Restraint*

Finally, the expenditure-restraining effect of the rule that an additional dollar of expenditures must be matched by an additional dollar of taxes (in terms of the agreed high level of employment) has been one of the CED policy's chief attractions to many groups. Even if the forecasting and timing barriers to compensatory fiscal action could be overcome, preservation of this disciplinary effect would involve severely limiting the scope for countercyclical manipulation of tax and expenditure rates. This raises two important questions. First, does the CED rule effectively restrain spending and promote economy in government? Second, is this restraint a good thing, *i.e.*, does it result in wiser public-expenditure decisions and a better allocation of resources between public and private use, than we would have in the absence of a balanced-budget rule?

As to the first question, we should note that the restraint exerts its force not on those who are pressing for the expenditures but on the President and Congress, whose resistance to pressures is presumably strengthened by the unpleasant political consequences of higher taxes. But one can readily perceive a number of loopholes and by-passes to this restraining effect. For many expenditure programs the initial tax consequences, which are the ones that bear most directly on the political decision, may be only a small fraction of the eventual tax requirements (*e.g.*, the "open-end programs" for farm price supports, veterans benefits, and home mortgage purchases and the large resource development programs like the Missouri basin project). Moreover, there is considerable evidence that when the tax shoe pinches, it tends to jeopardize broad but diffused-interest programs of national significance like aids for school construction or foreign economic aids while exerting little restraint on expenditures infused with a strong sectional interest. The raw pork of the annual rivers and harbors bill gets very little exposure to the heat of the tax fire.

The restraining effect of the tax test may also be undermined by

[37] Smith and Mikesell, *op. cit.*, pp. 38-39, state that "if orthodox monetary policy had been successful in checking inflation in Britain in 1955, it probably would have accomplished this result mainly by causing a reduction in the fixed investment expenditures of the private sector. . . . There is more than one way to control aggregate demand, and monetary policy is not always the best way, even if it works effectively." For a discussion of distributional effects of different policies, see E. R. Rolph, "Economic Stabilization via Taxation, Debt Management, and Monetary Policy," National Tax Association, 1956 *Proceedings* (Sacramento, 1957), pp. 251-57.

sustained economic growth which automatically increases federal tax revenues by about $3 billion a year. This "easy money" may be an open invitation to added spending.[38]

The answers to the second question are even less reassuring. Our problem may not be so much that we will fail to count the cost of government expenditures and therefore overexpand government, but that our folkways and fiscal practices tend to discriminate against collective use of resources, even where public use would represent a more efficient resource allocation than private use.[39] Our Puritan insistence on "tax directness" or "tax consciousness" may have had this type of effect. We have failed to distinguish clearly between the two elements of tax consciousness, namely, (1) making the taxpayer aware of his tax payments and (2) making taxes painful to pay. Public goods are not likely to compete on even terms with private goods if taxes are made hard to pay and if taxpayers are made more acutely aware of the tax costs than the service benefits of government.

When economic growth produces slack in the federal budget, the "tax test" does not tell us whether the slack should be taken up by increased federal programs, by increased federal aids to hard-pressed state and local units, by tax reductions to make room for state and local tax increases, or by tax reduction to put money into private pockets. To make these decisions requires a careful balancing of the relative benefits of alternative federal, state-local, or private uses of the funds, not simple reliance on the willingness to bear federal taxes.[40]

Possibly, even if the restraining effect of a balanced-budget rule is weak and often misdirected, the popular devotion to the balanced-budget dogma is so strong that fiscal policy must in some way be accom-

[38] CED's members are not unaware of this problem. A footnote to CED's June 1956, statement (p. 4) severely criticizes the stabilizing budget policy on this score. Perhaps to meet this criticism, J. Cameron Thomson, Vice-chairman of CED, paraphrased the disciplinary rule under present conditions as follows: ". . . every new expenditure program . . . should be undertaken only after the advantages of a tax reduction of similar magnitude are *explicitly* weighed against the need for the new program." "The Realities of Tight Money," an address by J. Cameron Thomson, Committee for Economic Development (New York, 1956).

[39] For example, while "extra-buyer benefits" as well as the cost criterion strongly support mosquito-control programs (estimates for area control by local governments against individual or small-group control indicate that the per-person cost of the former may be less than one-tenth of the latter), the adoption of such programs is often thwarted by the attached "mill-levy."

[40] CED's May 1957 statement clearly recognizes this need for developing standards other than the balanced-budget test to determine the worthwhileness of public expenditures. In fact, its discussion of "How to Restrain Expenditures" (*op. cit.*, pp. 8-28) does not base itself on the balanced-budget rule at all, noting that "Even if total expenditures are balanced by receipts, any expenditure is excessive if it costs too much for the national benefit it provides" (p. 8).

modated to it. In that case, we might be thoroughly aware of the defects of the rule and yet regard it as a lesser evil than an annually or cyclically balanced-budget rule. But there is a sharp distinction between reluctant acceptance of this rule as a least-evil solution and the implicit suggestion that it represents an optimal solution. And in no event should the rule be allowed to serve, or even to appear, as a substitute for a positive and well-reasoned theory of public expenditures.

VI. *Conclusion*

We are all very much indebted to CED for helping to rechannel public thinking about federal fiscal policy along informed and responsible lines, for stimulating professional fiscal-policy thinking in pragmatic terms, for alerting us to the perils of indiscriminate compensatory fiscal action, and for giving us a periodic perceptive analysis of the tax and budget situation. But the foregoing review offers grounds for skepticism concerning the operational assumptions and conclusions which have led CED to assign fiscal measures an inherently passive role via the stabilizing-budget policy, reserving the active role for monetary controls. If the alternative assumptions and conclusions developed in this paper are acceptable, the practical implication for CED's fiscal-monetary policy is simply this: that its operational effectiveness as an instrument of economic stabilization can be materially improved by increasing its reliance on discretionary relative to automatic fiscal controls and its reliance on fiscal relative to monetary policy.

COMMUNICATIONS

A Note on the Measurement of the Benefits from Public Investment in Navigation Projects

In recent years increasing concern has been expressed in Congress and elsewhere regarding the methods and procedures by which federal navigation improvement projects are evaluated and recommended for development by the Corps of Engineers,[1] the agency of the government basically responsible under law for the improvement of rivers and harbors for navigation. In this paper an attempt is made to apply elements of economic theory to the established procedure used by the Corps to estimate navigation benefits.[2] The question is posed, Can contemporary public investment in navigation projects be reasonably justified on the basis that expected benefits will exceed costs?

I. *The Theory Underlying Benefit Estimation*

The Corps of Engineers currently defines navigation benefits as equaling the difference between the cost to shippers of transportation by the cheapest available (or some hypothetical) alternative and the estimated cost to shippers of transportation by waterway. The cost by water includes the estimated costs of bargeline service, terminal and transfer costs, but not the cost of the waterway itself.

This definition can be given a diagrammatic interpretation in terms of demand and supply relationships (see Figure 1). Assuming that water transport is an imperfect substitute for alternative transport service which usually has advantages of both speed and convenience,[3] the demand for water transport will be zero at the rate per ton P_2, the current alternative transport

[1] For a popular discussion of the transportation problem, see: Gilbert Burck, "The Great U. S. Freight Cartel," *Fortune,* Jan. 1957, pp. 102-5, 192-202. The best contemporary evaluation of federal navigation projects was made by C. D. Curran, head task-force administrator, Hoover Commission Task Force on Water Resources and Power; see: Commission on Organization of the Executive Branch of the Government (Hoover Commission), *Task Force Report on Water Resources and Power* (Washington, 1955), Vol. III, pp. 1317-95. For select criticisms of the Corps' analysis, see: the Jones *Report,* House Committee Print Nos. 21 and 24, 82nd Cong., 2nd sess., Dec. 5, 1952; and C. L. Dearing and W. Owen, *National Transportation Policy* (Washington, 1949).

[2] The procedures used to estimate navigation benefits as outlined by the Corps can be found in the following: Commission on Organization of the Executive Branch of the Government, *op. cit.,* Vol. II, pp. 874-77; and Vol. III, pp. 1328-33; E. W. Weber, *Civil Works Administration Project Formulation, Justification and Cost Allocation* (Fort Belvoir, 1950), Appendix 11; and Federal Inter-Agency River Basin Committee, Subcommittee on Benefits and Costs, *Proposed Practices for Economic Analysis of River Basin Projects* (Washington, 1950), pp. 74-79.

[3] The limited accessibility of water transport, its slowness of operation, and the circuity of water routes have been emphasized in a great many reports and permeate the entire report of the Commission on Organization of the Executive Branch of the Government, *op. cit.,* Vol. II, pp. 843-1002.

cost, or any higher rate. From P_2 a demand curve for water transportation can be drawn on the assumption that the alternative transport cost will be unaffected by competition from water-borne traffic. The Corps in effect arrives at a second point on this same demand curve, B, by estimating the barge and terminal cost of water transport, P_0, and by estimating the amount of tonnage that will be shipped at this rate, X_2. Since the Corps' estimate of benefits would be the rectangular area P_2ABP_0, the implied demand curve for water transport is the angular line P_2AD_1. From a theoretical point of view this is a most unusual curve, and, in view of the nature of demand, it would appear to be very unrealistic.

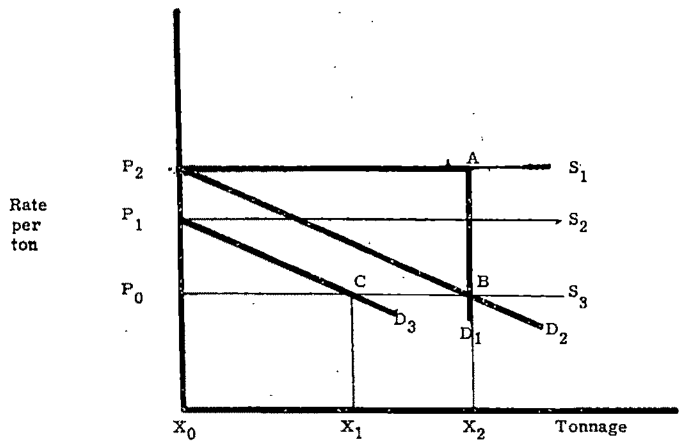

FIGURE 1

To measure the benefits attributable to making available an alternative supply of a service at a lower price than that which otherwise would prevail, some principle of either consumer or producer surplus must be accepted.[4] It should also be recognized that an interpersonal comparison is involved since those who pay for public navigation, the taxpayers, constitute a larger group than those who benefit directly by cheaper transportation. In terms of modern welfare economics the question is, could those who gain by cheaper transportation compensate the taxpayers for their losses and still be better off?

If the full amount of the estimated surplus were needed to justify public expenditures in a one-to-one benefit-cost ratio (fulfilling the requirement imposed by law that benefits equal or exceed costs), there would exist no real social surplus associated with navigation investment. Use of the entire surplus to justify public investment in navigation might, therefore, leave nothing to balance alternative real surpluses which might be associated with the same funds invested in industries which are unable to collect surpluses.[5]

However, while consumer and producer surplus foregone elsewhere in the

[4] A. Marshall, *Principles of Economics*, 8th ed. (New York, 1952), p. 811.

[5] The presumption of those opposed to price discrimination, the market mechanism for collecting surpluses, is that people have a right to enjoy consumer and producer surpluses without paying for them.

economy as a result of navigation investment could essentially justify deleting part if not all of the benefits the Corps attributes to navigation investment, no adjustment will be made for general surpluses foregone. For the purposes of the following discussion I accept the savings principle that benefits can be approximated by the area under the conventional demand curve.

My first quarrel with the Corps' benefit estimation procedure rests on the inconsistency between the implied demand curve P_2AD_1 and the general nature of the demand function. Increases in waterway traffic are expected to result from three sources: (1) existing traffic, not now using a waterway, which is expected to be attracted to a new or improved waterway; (2) undeveloped or entirely new traffic, which would not move previously because of prohibitive rates, lack of a transportation outlet, or general physical isolation; (3) potential waterway traffic which is expected to develop as a result of growth of the area. Category (2) and the fact that water transport is generally slower and often inconveniently located in relation to consumption and production casts considerable doubt on the relevancy of P_2AD_1. Obviously, undeveloped traffic which could not develop because the alternative rate is too high would not be willing to pay the same prohibitive rate by water. Traffic can be attracted to water only if rates by water are lower than the alternative transport rate. This means the true demand for water transport must, for every quantity shipped in excess of zero, lie below P_2, the alternative transport rate. We also know that the quantity of shipping demanded at P_0, the expected cost by water, is X_2 and that for any quantity of shipping in excess of X_2, P_0 is a prohibitive rate.

Not knowing exactly what the true demand for water transport looks like between P_2 and B a plausible assumption might be that the demand curve connecting these two points can be approximated by a straight line, D_2. The Corps' estimate of navigation benefits would then be exactly twice the amount of the theoretical consumer surplus.

Although D_2 would be a much more plausible estimate of the demand for transport services by water, it is of course inappropriate for decision-making purposes. It can justifiably be argued that a demand curve which holds the alternative rate constant at S_1 is irrelevant. Prevailing freight rates may contain rents accruing to historical investment and possibly a monopolistic or discriminatory profit. Theoretically, competition by another transport service or action by the Interstate Commerce Commission might be able to force rates down to, say S_2, that rate which will just pay all factors their alternative worth or market value outside the transportation industry. In going from S_1 to S_2 only the transfer of income from the owners of alternative transport service to shippers in general is involved.

An examination of navigation literature makes it quite clear that price cutting on the part of railroads is to be expected in areas in which there is a danger that publicly subsidized navigation will divert a substantial amount of railroad traffic.[6] It has even been alleged that profit losses sustained in

[6] Commission on Organization of the Executive Branch of the Government, *op. cit.*, Vol. II, pp. 921-24.

competition with water-borne traffic are transferred to consumers in areas not affected by competition via discriminatory freight rates.[7] In any case, assuming that railroads knew their demand both before and after the introduction of competing water traffic and have been acting rationally, the cut in freight rates would certainly imply a diminution of the rents attributable to historical investments in permanent and semipermanent facilities; if rent diminution cannot be made up elsewhere within the system, railroad equity owners will suffer a wealth loss. While the social gains from railroad rate reduction may be more than sufficient to compensate (in theory) the owners of railroad securities,[8] the gains from rate reduction should not be attributed to public investment in navigation projects, since the rate reduction could conceivably be attained by action of the ICC without navigation investment.

A more plausible estimate of the real social "savings" from public investment in navigation, it seems to me, would be based upon a demand for water transport that assumes competing transport companies would lower the existing rates. For illustrative purposes, I have drawn such a curve, D_3, in Figure 1. An assumption implicit in D_3 is that as the rate differential decreases between alternative transport and water-borne freight the quantity that one can expect to be shipped by water at every rate will also decline.

In fact, a bias in the direction of overestimating the tonnage expected to move by water is to be anticipated for another reason as well. The Corps' method of estimating expected tonnage by water is often based on information obtained by questionnaires which are sent by the District Engineer to a sampling of shippers and receivers of freight throughout the tributary area and in other areas which may be affected.

> These questionnaires generally indicate the type and extent of navigation improvement contemplated, and attempt through a series of questions to develop the amount and type of traffic which recipient believes will use the waterway, and to obtain views on the rates and facilities which will make it attractive to shippers.[9]

In view of the fact that public navigation benefits are nonreimbursable, any net benefit from public investment in navigation will accrue as a local "windfall" to shippers, receivers and possibly local consumers. Under these circumstances it is highly unlikely that either shippers or receivers will consider it in their own interest to underestimate expected tonnage by water when the anticipated benefits on the basis of which the public investment is to be justified are a direct function of tonnage. One of the most frequent criticisms of the Corps' benefit estimates is the optimism which characterizes the expected tonnage associated with navigation development.[10] In this con-

[7] *Loc. cit.*

[8] Harold Hotelling, "The General Welfare in Relation to Problems of Taxation and of Railway and Utility Rates," *Econometrica,* July 1938, VI, 242-69.

[9] E. W. Weber, *op. cit.*, p. 25.

[10] Commission on Organization of the Executive Branch of the Government, *op. cit.*, Vol. II, p. 875; Vol. III, pp. 1317-94.

nection the Corps has further been accused of double-counting certain tonnage due to the extension or improvement of existing waterways.[11]

II. *The Measurement and Discounting of Navigation Costs*

One of the most striking revelations made by the Task Group on Navigation was the complete record of cost experience on all river and harbor projects considered for the fiscal year 1951. It was found that between the time of project authorization and 1950, the estimated real cost of navigation improvements had increased by 41.9 per cent. Of this figure the Corps attributed 17.6 per cent to authorized extensions, 4.1 per cent to changes in local needs, 6.3 per cent to structural and engineering modifications, 8.5 per cent to unforeseen conditions, and 5.8 per cent to inadequacies in estimates.[12]

Perhaps the most significant criticism of the Corps' cost-estimating procedures is not that of the tendency consistently to underestimate the real costs associated with project construction, but of the tendency to ignore both opportunity costs of using navigable water for other purposes, and real cost increases in other activities caused by navigation investment.

Very little work has been done with respect to measuring opportunity costs. There may, however, exist competing uses for water, such as off-season power generation and private irrigation development, that would not only preclude navigation but entail greater social benefits. In the Missouri Basin, for instance, a conflict exists between the diversion and consumptive use of water for irrigation in head-water areas and its use in lower portions of the Basin to meet the flow requirements of navigation.[13] Any opportunity rent attributable to water as a scare resource that would be foregone as a result of navigation investment should be counted as a cost and included in the analysis.

A second shortcoming of the Corps' analysis is its failure to take into account increased inconvenience and costs associated with bridge clearances.[14] Specifically, the General Bridge Act of 1946[15] grants the following authority:

> The location and plans for such bridges shall be approved by the Chief of Engineers and the Secretary of the Army before construction is commenced, and in approving the location and plans of any bridge, they may impose any specific conditions relating to the maintenance and operation of the structure which they may deem necessary in the interests of public navigation, and the conditions so imposed shall have the force of law.

Surely the incremental cost of increased bridge clearance and any increased inconvenience imposed on other forms of traffic by navigation investment are real social costs and should be reflected in the benefit-cost analysis of

[11] *Ibid.*, Vol. III, p. 1330.

[12] *Ibid.*, Vol. II, p. 873.

[13] *Ibid.*, Vol. III, p. 1104.

[14] *Ibid.*, Vol. II, pp. 924-28.

[15] (60 Stat. 812, 847.)

TABLE I.—BENEFIT-COST RATIOS AND RELATED DATA, 24 NAVIGATION PROJECTS, CORPS OF ENGINEERS, 1953

Item and Location	Year Authorized	Year Started	Benefit-Cost Ratio
Demopolis Dam and Lock, Tombigbee River, Ala.	1945	1949	1.07
Jim Woodruff Dam, Apalachicola River, Fla.	1945–46	1947	1.12
Buford Dam, Chattahoochee River, Ga.	1946	1950	1.12
Chain of Rocks Canal, Missouri River, Ill.	1945	1946	2.0
Lock 19, Mississippi River at Keokuk, Ia.	1935	1952	1.4
St. Anthony Falls, Mississippi River, Minneapolis, Minn.	1945	1948	1.4
McNary Dam and Lock, Columbia River	1945	1947	1.19
The Dalles Dam, Columbia River	1950	1952	1.26
Reconstruction locks No. 2, Monongahela River, Pa., and W. Va.	1909	1949	3.17
Cheatham Dam and Lock, Cumberland River, Tenn.	1946	1950	1.77
Old Hickory Dam and Lock, Cumberland River, Tenn.	1946	1952	1.55
Gulf Intracoastal Waterway, Colorado River locks	1950	1951	1.5
Chief Joseph Dam, Columbia River	1946	1949	1.59
Ice Harbor Dam and Lock, Snake River	1945	1953	1.19
Howell Mill Shoals Dam, Coosa River, Ala.	1945	1954	1.19
Upper Columbia Dam and Lock, Chattahoochee River, Ga.	1946	1954	1.12
Warrior Dam and Lock, Warrior River, Ala.	1909	1954	1.27
Celina Dam, Cumberland River, Ky.	1946	1954	1.25
Fernbank Dam and Lock, Ohio River	1909	1954	1.36
Greenup Dam and Lock, Ohio River	1909	1954	1.33
New Cumberland Dam and Lock, Ohio	1909	1954	1.18
Carthage Dam, Cumberland River	1946	1954	1.52
McGee Bend Dam, Angelina River, Tex.	1945	1954	1.41
Hildebrand Dam and Lock, Monongahela River	1950	1955	1.72

the Corps. Currently these costs are ignored. A further criticism is that the public has been required in many cases to provide at substantial extra cost clearances for conjectural future traffic that never materializes.[16]

If benefit-cost ratios for navigation projects are properly to reflect the alternative worth of capital to society (say, in producing roads, consumption goods and other things society wants) it would be highly desirable to discount expected benefits and costs from navigation, which accrue unevenly with respect to time, at an external market rate of return reflecting a comparable risk. Currently[17] the only discount rate used by the Corps which approximates the average rate of interest payable on money borrowed for long-term private investment is the rate used to discount nonuniform *benefits* to an equivalent average annual benefit; it varies from 4 to 5 per cent. As-

[16] Commission on Organization of the Executive Branch of the Government, *op. cit.*, Vol. II, pp. 924-28.

[17] Federal Inter-Agency River Basin Committee, *op. cit.*, p. 74.

TABLE II.—A MODEL DEPICTING THE POSSIBLE EFFECT OF BIAS ON BENEFIT-COST RATIOS USED TO JUSTIFY PUBLIC INVESTMENT IN NAVIGATION IMPROVEMENT PROJECTS

	Assumed Benefit-Cost Ratio Estimated by Corps of Engineers		
	1.00 to 1.0 (1.00)	1.25 to 1.0 (1.25)	1.50 to 1.0 (1.50)
Benefit Adjustments:			
1. The effect on the ratio of an assumed straight-line demand curve	.50 to 1.0 (0.50)	.62 to 1.0 (0.62)	.75 to 1.0 (0.75)
2. If competing carriers lower the Corps' assumed rate differential by 40 per cent	.60 to 1.0 (0.60)	.75 to 1.0 (0.75)	.90 to 1.0 (0.90)
3. Assuming the Corps has overestimated actual tonnage shipped by 40 per cent	.60 to 1.0 (0.60)	.75 to 1.0 (0.75)	.90 to 1.0 (0.90)
The multiplicative effect of adjustments 1 through 3 would be:	.18 to 1.0 (0.18)	.22 to 1.0 (0.22)	.27 to 1.0 (0.27)
Cost Adjustments:			
4. Assuming a 41.9 per cent underestimate of average annual costs	1.00 to 1.42 (0.70)	1.25 to 1.42 (0.88)	1.50 to 1.42 (1.06)
5. Assuming an opportunity cost (because of the necessity of foregoing alternative uses of water) of 10 per cent of the Corps' estimate of the project	1.00 to 1.10 (0.91)	1.25 to 1.10 (1.14)	.05 to 1.101 (1.35)
6. Assuming costs to others increase by 10 per cent of the Corps' estimate as a result of required bridge clearance and inconvenience to other forms of transportation	1.00 to 1.10 (0.91)	1.25 to 1.10 (1.14)	1.50 to 1.10 (1.36)
The additive effect of adjustments 4 through 6 would be:	1.00 to 1.62 (0.62)	1.25 to 1.62 (0.77)	1.50 to 1.62 (0.93)
Interest Adjustments:			
7. Assuming an increase in interest of 2 per cent on a construction outlay that is 36.6 times average annual maintenance	1.00 to 1.22 (0.81)	1.25 to 1.22 (1.02)	1.50 to 1.22 (1.23)
The multiplicative and additive effects of adjustments 1 through 7 combined would be:	.18 to 1.84 (0.10)	.22 to 1.84 (0.12)	.27 to 1.84 (0.15)

Explanation

1. Based on our discussion of the theory underlying benefit estimation (see p. 654).
2. A percentage relation suggested by the River and Harbor Board in 1939 in connection with the proposed Erie-Ohio River Canal Project. See Commission on Organization of the Executive Branch of Government, *op. cit.*, p. 998.
3. Assumes a reduction in anticipated tonnage equivalent to the reduction in rate differential presupposed by (2).
4. Based upon the Corps' own estimate of real cost inflation previously discussed (p. 656).
5. An arbitrary figure included for illustrative purposes. This is an upward adjustment in

suming benefits accrue evenly with respect to time (in many cases this is not an unrealistic assumption), discounting on the benefit side is quite unnecessary since the Corps' stated practice is to convert all benefits and costs to equivalent average annual amounts.[18]

The more important interest rate is the rate used to compound construction *costs* to a comparable average annual equivalent since construction costs occur very unevenly with respect to the assumed fifty-year life of a project. This rate[19] is currently 3 per cent or approximately the rate of return on long-term government bonds. The government's borrowing rate, however, is not the relevant rate since the risk to holders of government securities is not at all comparable to the risk associated with public investment in navigation projects. The conjectural and hypothetical nature of navigation benefits would make these benefits about as uncertain as any benefit imaginable. If construction costs are to be made truly comparable to annual benefits, it would seem appropriate to charge navigation projects a higher rate of interest than the current 3 per cent rate.

III. *Towards a More Realistic Analysis*

The preceding discussion indicates the need for more realism in the evaluation of proposed navigation projects. Nowhere is this more evident than when considering benefit-cost ratios which are relied upon in the justification of proposed improvements. According to the Jones Report, all too frequently projects have been approved on the basis of a slim margin of tangible benefits over estimated costs.[20] The data in Table I was submitted by the Corps of Engineers in connection with its estimate of appropriations for 1953. The most striking aspect of the benefit-cost ratios in Table I is their comparatively low order of magnitude.

In order to establish a frame of reference for appraising existing benefit-cost analysis, Table II provides a model depicting the possible effect of a biased treatment of benefits and costs on benefit-cost ratios of three assumed magnitudes, 1.00 to 1.0, 1.25 to 1.0 and 1.50 to 1.0. Where possible, the ratio adjustments have been tailored to either existing data or plausible theoretical assumptions.

Since all of the assumed adjustments in Table II are equal to or greater than 10 per cent, applicability of any one of the 7 adjustments would imply that a benefit-cost ratio less than 1.10 to 1.0 should be rejected if benefits are

18 *Loc. cit.*

19 *Ibid.*, p. 79.

20 Jones *Report, op. cit.*, p. 45.

cost to allow for the fact that frequently navigation development precludes use of the water for irrigation or power.

6. Again an arbitrary figure but perhaps not at all unreasonable (see p. 656).

7. Based upon an increase in discount rate from 3 per cent to 5 per cent. The life expectancy of the improvement is assumed to be 50 years. Construction outlays at the onset of improvement are assumed to have a present value 36.6 times as great as the expected average annual maintenance charge. Interest increase is assessed only against construction outlays over the assumed span of 50 years after project completion.

in fact to exceed costs. Applicability of all 7 adjustments in terms of their assumed order of magnitude would imply that one should be suspicious of any benefit-cost ratio less than 10.00 to 1.0.

The parameters assumed in Table II are meant to be simply illustrative; the purpose has been to emphasize seven grounds on which one might expect a bias favorable to the project in the procedures used to evaluate navigation improvements, and to provide a framework for adjusting faulty ratios.[21] From a theoretical point of view, acceptance of benefit-cost ratios as the statistic for comparing investment alternatives should be subjected to additional criticism. In the first place, the degree to which benefits and costs are net in any one year varies from one investment category to another and from one department to another. A ratio of gross benefits to gross costs is of only limited usefulness in making investment appraisals and has virtually no economic significance. In the second place, the benefit-cost ratio is an average, while the conditions for obtaining an economic maximum are marginal. The ratio, therefore, is unreliable with regard to determining the appropriate size of a project and to selecting the best alternative from a set of mutually exclusive projects.

If on the average the benefits from public investment only equaled 50 per cent of the cost of navigation development (which implies a real benefit-cost ratio of 0.50 to 1.0), the social wealth loss associated with completing only the active authorized improvement projects for inland and intracostal waterways would be between $750,000,000[22] and $1,500,000,000[23] or about $4 to $9 per capita.

The most important losses stemming from the federal navigation program may not be the direct losses allocable to navigation investment but the fact that alleged navigation benefits can be used to justify directly or indirectly equally wasteful investment in other features of multipurpose projects. Currently the cost of multipurpose features associated with active authorized waterway improvement projects of the Corps is about one-half of the total estimated cost of completing all improvements, about one-half of $3,025,400,000. In 1955 the revised cost allocation for irrigation alone on the Missouri River Basin Project was $2,235,749,000, of which only $385,528,000 is scheduled for eventual repayment without interest over a period of 40 years following a 10-year development period. The Bureau of Reclamation does not even attempt to justify expenditures of this magnitude for irrigation on the basis that expected increases in the value of irrigable land and water will exceed costs. The magnitude of conceivable indirect loss of wealth associated with navigation development is rather astounding.

[21] The Corps' procedure for analyzing projects might not be so "bad" if we had someone in the Bureau of the Budget, say, with a table of corrections; as it is, each Congressman, while perhaps recognizing the possibility of bias, must make his own subjective corrections.

[22] If all wealth loss were attributed to an overestimation of benefits, the 50 per cent wealth loss would equal one-half of the Corps' expected cost ($1,500,000,000).

[23] If all wealth loss were attributed to an underestimation of costs, the wealth loss would exactly equal the Corps' expected costs.

IV. *Concluding Remarks*

The great pressure for uneconomic investment in navigation projects can really be understood only within the context of existing freight-rate structures. Construction of waterways becomes a tool for redressing alternative transport rates[24] and for obtaining special privilege. Since the taxpayer shoulders the burden of improvement and maintenance,[25] direct benefits to shippers need bear no relation to real social costs. In this connection it would seem that a relevant alternative to public investment in navigation might be the subsidy necessary to induce alternative transport companies to lower their rates to the expected water rate. If the per-unit cost of this subsidy should be lower than the public cost per unit shipped by water, greater social gains would accrue from use of the subsidy rather than public investment in navigation. Since the introduction of water transportation may inflict equity losses on existing transport companies which the Corps does not consider costs of navigation, it seems only fair that existing transportation companies be given the opportunity to compete in producing benefits via lower freight rates. One advantage of a subsidized purchase of lower freight rates would be that the subsidy could be extended generally and need not depend upon the good fortune of a conveniently located river.

In a free society with both consumer and producer sovereignty, the only real test of a benefit is the willingness of people individually and collectively to pay for value received. Navigation costs ought to be reimbursed by the direct beneficiaries rather than by public subsidy for the following reasons: (1) Benefits are localized and accrue directly to shippers, receivers and consumers. Income transfers resulting from public subsidy of navigation may be inconsistent with socially accepted standards for income redistribution if people with relatively the highest local incomes benefit the most.[26] It should be noted that only about 10 per cent of the intercity water-borne commerce is regulated by the ICC. The taxpayer has no assurance that monopolistic elements will not siphon off what benefits do occur. Further, public income transfers via changes in relative prices represent a denial of consumer sovereignty; it is unlikely that consumers will be made as well off as they would be if given comparable monetary subsidies.[27] (2) In view of the economic

[24] Commission on Organization of the Executive Branch of the Government, *op. cit.*, Vol. II, p. 1002; Vol. III, p. 1332.

[25] For one of the best discussions, see: J. H. Frederick, professor of transportation, University of Maryland, "User Charges on the Waterways of the United States, *ibid.*, Vol. III, pp. 1299-316.

[26] Illustrative example: The argument has been advanced that slack water navigation on the Snake River above Lewiston, Idaho, would facilitate the development of the area's mineral resources; particularly, it would make available lime from a rather high-grade deposit currently inaccessible. Assuming that the price of lime to consumers would be only imperceptibly affected by the addition of a new low-cost deposit, most of the direct benefits from navigation in this case would accrue to the owners of Lime Point. Lime Point is currently owned by two people. This information was obtained during discussions with various individuals attending hearings sponsored by the Corps of Army Engineers at Lewiston, Idaho, July 2, 1956.

[27] H. M. Southworth, "Economics of Public Measures to Subsidize Food Consumption," *Jour. Farm Econ.*, Feb. 1945, XXVII, 38-66.

defects in existing benefit estimation procedures and the implied prospensity of the Corps to overestimate theoretical benefits, reimbursability might be the best insurance the public could have that expected benefits from public investment in navigation equal or exceed expected costs.

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Liquidity Preference and Loanable Funds Theories of Interest: Comment

The recent publication in this *Review* of the article by S. C. Tsiang, "Liquidity Preference and Loanable Funds Theories, Multiplier and Velocity Analyses: A Synthesis,"[1] reopens a discussion which has never long been absent from the journals since the publication of Keynes' *General Theory*. It is unfortunate that, for twenty years, so much time and attention have had to be devoted to the mere mechanics or logic of the relationship between liquidity preference and loanable funds forms of statement of interest theory, and with results that have frequently been to compound the confusion. Perhaps because of this focus of the discussion too little attention has been paid to some real questions of substance raised by Keynes' contributions to interest theory.

Nevertheless, a correct understanding of the relationship between the two forms of statement of interest theory does probably constitute an essential prerequisite to an intelligent discussion of substantive problems. Fortunately, Tsiang has now shown clearly what is wrong with certain former attempts to reconcile the two methods of statement, and has, at least for one specific set of period-analysis assumptions, provided a clear reconciliation between the two. It is only to be regretted that his analysis was not more general, that it was not clear on the relationship between equilibrium and disequilibrium (statics and dynamics), and that he did not consider what this author believes to be some of the more relevant questions of substance.

More specifically, we shall argue that: (1) Contrary to Tsiang's view, liquidity preference and loanable funds theories have different subject matter: the former identifies an asset-holding equilibrium, the latter (unless it is a mere trivial rearrangement of the former) deals with what happens in disequilibrium. (2) Tsiang's specific period assumptions cause him to miss the crucial question for loanable funds analysis—at base, an empirical one—which relates to the *speed* of the hoarding or dishoarding flows which occur when stock equilibrium does not exist. (3) Tsiang's apparently unconscious assumption that these flows are very rapid means that the speculative element must dominate short-run interest rate determination. (4) Tsiang's

[1] Sept. 1956, XLVI, 539-64. The present note relates only to the interest-rate portion of Tsiang's article. The author would have somewhat similar comments regarding the multiplier-velocity section, but that is another subject. See, however, a related discussion in G. Ackley, "The Multiplier Time Period: Money, Inventories, and Flexibility," *Am. Econ. Rev.*, June 1951, XLI, 350-68.

identification of the transactions demand for money with the level of current consumption plus investment rests on questionable assumptions and lacks generality. (5) The universal assumption in loanable funds analyses, including Tsiang's, that income effects on saving and investment are lagged although interest rate effects are simultaneous is an empirically implausible one.

The above points are made (in not quite this order) in Section I. In Section II some broader problems are briefly considered.

I. *The Two Theories Compared*

1. By now it should be clear that any analysis of the interest rate can only be conducted within the framework of a completely specified macroeconomic model, in which all other relevant economic magnitudes are likewise determined. Consider, for example, the macroeconomic model represented by the following set of familiar equations. This is a static or equilibrium system. It is basically "classical" in its labor-market and output assumptions, but incorporates as well Keynes' consumption function [in (4)], and his liquidity preference or speculative demand for money analysis [in (8)].

(1) $Y = Y(N)$ (Aggregate production function)

(2) $N = N\left(\frac{W}{P}\right)$ (Supply of labor function)

(3) $\frac{W}{P} = \frac{dY}{dN}$ (Condition for labor market and output equilibrium)

(4) $C = C(Y, r)$ (Consumption function)

(5) $I = I(r, Y)$ (Investment function)[2]

(6) $Y = C + I$ (Condition for income equilibrium)

(7) $M_T = KPY$ (Transactions demand for money)

(8) $M_S = L(r)$ (Speculative demand for money)

(9) $M = M_T + M_S$ (Condition for monetary equilibrium)

where

Y = aggregate real output, real income

N = aggregate employment

W = money-wage level

P = general price level

C = planned or desired consumer expenditures (in real terms)

I = planned or desired investment expenditures (in real terms)

[2] The author would prefer to omit the Y, but defers to Tsiang's example.

r = rate of interest

M_T = required or desired transactions balances

K = fraction of money income required for transactions balances

M_S = planned or desired speculative balances

M = total stock of money, exogenously determined

The verbal descriptions which follow the equations are only for convenient identification, and are not to be taken in any other way. In particular, the labels given to equations (3), (6), and (9) are entirely literary. One could as well attach any of these three labels to any of the three equations. The point is that this is a system of simultaneous equations whose solution (if one exists) requires a set of variables which simultaneously satisfies all nine equations. If a particular set of variables satisfies any eight but not the ninth, then values of all variables may have to change before a set is found that satisfies all nine.

In particular, it is fruitless to pick out any one equation [for example, (8)], or even any four of these equations [for example, (4), (5), (6), and (8)], as being the ones determining the rate of interest (along with the other variables which these equations contain). For through these other variables, which appear in other equations of the system, the rate of interest is linked into a system of mutual interdependence involving all variables and all relationships. It is clear that we can never consider a *theory of interest* independently of the larger macroeconomic model in which it is included.

Suppose that we now attempt to revise the previous system of equations to include the usual loanable funds formulation. Instead of the equation for the supply and demand for money

$$M = M_T + M_S \tag{9}$$

we substitute one for the supply and demand for loanable funds

$$S + \Delta M + DH = I$$

where S is saving, ΔM is money creation (exogenous), and DH dishoarding. For S, we can clearly substitute $(Y - C)$. Dishoarding (which, if negative, is hoarding) must in some sense represent the difference between the money which people actually hold and that which they desire to hold. Thus it might be written: $DH = M - M_T - M_S$. The loanable funds equation therefore would become:

$$(Y - C) + \Delta M + (M - M_T - M_S) = I \tag{10}$$

It is quite easy to see, however, that, as long as we are dealing with a static or equilibrium system, in which all relationships hold simultaneously, this constitutes a trivial rearrangement of the previous set of equations. For, by equation (6), we know that $Y - C = I$. We can therefore subtract equals from both sides of (10) to leave

$$\Delta M + (M - M_T - M_S) = 0$$

or

$$M + \Delta M = M_T + M_S$$

We can also easily appreciate that the system cannot be in equilibrium unless ΔM should be zero; otherwise [see equations (7) and (8)] either r or PY would have to be constantly changing. Thus, in equilibrium, equation (10) becomes identical with our former (9).

We can conclude, therefore, that in an equilibrium or static model, it makes no difference whether we include the supply and demand for money [equation (9)], or the supply and demand for loanable funds [equation (10)]. This does not directly confirm or contradict any conclusion of Tsiang's, whose analysis, from the beginning, is couched in dynamic terms.

2. Once we make our analysis dynamic, it is not necessary that all of the above equations, which define positions of equilibrium, should always simultaneously be satisfied, nor is ΔM necessarily zero. Thus equations (9) and (10) need not, by subtraction of equals, reduce to the same thing. We may therefore proceed to a comparison of loanable funds and liquidity preference theories in a dynamic model.

The first simplification that we make is to assume prices to be rigid, thus splitting off the first three equations (or their equivalent). That is, "supply considerations" are ignored, and output is made to depend upon demand alone. (By the same token, all relationship between M and P is denied, which is the whole burden of the "quantity theory"). It is significant that all loanable funds analysis of the interest rate seems to be conducted on these assumptions. So, too, of course, is much "liquidity preference" analysis.[3]

The second simplification that all loanable-funds theories embrace is to introduce a lag in the effect of income changes on consumption (saving) and investment, although the interest rate effect remains simultaneous. Thus equations (4) and (5) become

$$C_t = C(Y_{t-1}, r_t) \tag{4.1}$$

$$I_t = I(r_t, Y_{t-1}) \tag{5.1}$$

The empirical validity of these lag assumptions is discussed below in paragraph 4. Their strategic importance in loanable-funds analysis, like the assumption of rigid prices, is that they permit us to have a "theory of interest" which is, at least in the very short run, independent of the larger macroeconomic model. Last period's income, now merely a datum, determines the level of this period's saving and investment schedules, which, together with dishoarding and money creation, determine this period's rate of interest. These also determine this period's income, but the process is one-directional; there is no current "feedback" from income to saving, investment, and the interest rate.

The methodological significance of these simplifying assumptions is considered briefly in Section II. For the present, we proceed to see how saving and investment may be incorporated along with money creation and hoarding into an analysis of the supply and demand for loanable funds. The first

[3] But because the liquidity preference analysis is static, and therefore simpler, it is easier to include it in a larger model which retains "supply considerations" and the price level.

basic problem we face is one of *units*. (This problem arises equally in our previous manipulation of the equilibrium system, but the solution or even recognition of it makes absolutely no difference in that context.) Keynes' supply and demand for money analysis dealt with a stock of cash and the demand for that stock. Stocks are not expressed in terms of a time unit; flows (like saving and investment) are. The stock of cash is $500 billion, not $500 billion per day or per year. Flows, however, must have a time unit stated or implied. What the stock analysis says is that there are certain combinations of interest rate (r) and money value of income (PY) at which the total actual stock of cash will be willingly held. Given any of these combinations of r and PY, wealth holders will be in equilibrium with respect to their cash holding; there will be no incentive either to net hoarding or dishoarding. But at all combinations of r and PY other than these, the actual stock, M, would diverge from the desired stock, M_T+M_S, and hoarding or dishoarding would occur as individuals attempted to alter their portfolios either by selling securities for cash (hoarding), or by using idle cash to buy securities (dishoarding). These kinds of transactions either absorb loanable funds or supply them, and thus should be included along with saving, investment, and money creation in an analysis of the interest rate. (Another way of putting it is that either hoarding supplies or dishoarding absorbs securities, and thus should be included, along with the demands for securities from savers and banks, and the supply from investors, in an analysis of security prices.)

The trouble is that the difference between two stocks (the actual and the desired stocks of cash) is still measured in stock terms; it has no time dimension. But it is to be added to or compared with flows (saving, investment, and money creation) that can only be expressed in terms of a time unit. Obviously one further piece of information is required. When there is a difference between actual and desired stocks of cash—say, an excess of $500 million of actual over desired—we need to know how fast this difference is released into the market. Is it at the rate of $10 million per day (for fifty days), of $100 million per day (for five days), or at a rate of $1000 million per day (for one-half day)?[4] This is an empirical question about the behavior of wealth holders that our stock analysis—normally framed only in equilibrium terms—never raises, much less answers. But it is obviously not only relevant but indispensable for a loanable funds, disequilibrium analysis.

Tsiang assumes the answer to this question in his discussion, but without appearing to realize that it is an empirical question. The excess is dumped into the market instantaneously (the market is open only for an instant at the beginning of the day) so that every day actual cash holdings just equal those desired.

Now it is indeed plausible to assume that portfolio adjustments can and

[4] We must not fall into the trap of assuming that release at one of these rates (*e.g.*, $100 million per day) will continue for the time specified (*e.g.*, five days) and then be completed. Until or unless the actual stock of M, or r and PY which determine the desired stock, should be altered, the excess will remain. However, the attempts to release the stock at one of these rates will affect r or PY, in a way which it is the object of our analysis to determine.

do occur very rapidly, although it is necessary to repeat that this is an empirical assumption. But are the consequences of this clear? What would be the results of another assumption? If we were to assume, for example, that the release of excess funds (or securities) were very slow, the consequence would be that the Keynesian speculative demand would play relatively little role in short-run interest rate determination. On the other hand, the Tsiang quick-release assumption has the consequence that the short-run determination of the rate of interest must be largely dominated by these portfolio-adjusting transactions—*i.e.*, by Keynes' speculative demand for money schedule. Accepting Tsiang's timing means that the *daily* amounts of saving and investment, whatever the interest rate, must be extremely small compared with the amounts of funds that can be withdrawn or supplied through portfolio adjustment. For the amount of hoarding that can occur in one day (on Tsiang's assumption) is limited only by the total amount of securities outstanding, which must be hundreds of times as large as daily saving; the amount of dishoarding by the total of idle cash. Even with a very moderate interest-rate elasticity of the Keynesian speculative demand schedule (in stock terms), the magnitude and slope (with respect to r) of the hoarding-dishoarding component should completely swamp saving and investment in the supply and demand for funds. Tsiang's graph[5] makes saving and dishoarding of roughly equal importance in the supply of funds. Drawing a conventional loanable funds diagram (Tsiang's is somewhat unusual), but incorporating a recognition of the much greater potential magnitude of the dishoarding component, we should have a situation like that pictured in our Figure 1.

In Figure 1, *II* and *SS* represent initial saving and investment schedules, r_0 is the market rate of interest, and this is an equilibrium situation with zero money creation and zero dishoarding. A shift in the investment schedule to *I′I′* raises the market rate of interest to r_m, at which rate the demand for funds, *OD*, is equal to the supply, which now includes not only saving in the amount *OB*, but also money creation in the amount *BC*, and dishoarding in the much larger amount *CD*.[6] Because our diagram assumes a large elasticity of the dishoarding component of the supply of funds, the interest rate has been raised only very slightly despite a large increase in investment demand. Although income will also change in this same period, the investment and saving schedules depend on last period's income, and can thus be considered as given.

Why is it important whether the rate of interest rises a little or a lot in response to an increase in investment demand, or falls a little or a lot in response to an increase in the propensity to save?

[5] *Op. cit.*, Figure 2, p. 549.

[6] In Figure 1, ΔM has been shown as a function of r, a relationship frequently hypothesized. Previously we considered M and ΔM exogenous. If the latter is preferred, the $S + \Delta M$ *curve* should be shown as parallel to the S curve. Tsiang's assumption, that current M is a function of current r, raises stock-flow problems identical with those discussed above in connection with hoarding and dishoarding—*i.e.*, problems of the *speed* of the banks' actions to adjust portfolios.

Knut Wicksell long ago pointed out that when a shift occurred in saving or investment schedules, altering the "natural rate" of interest (as from r_o to r_n in Figure 1), the banks would probably fill all or part of the gap

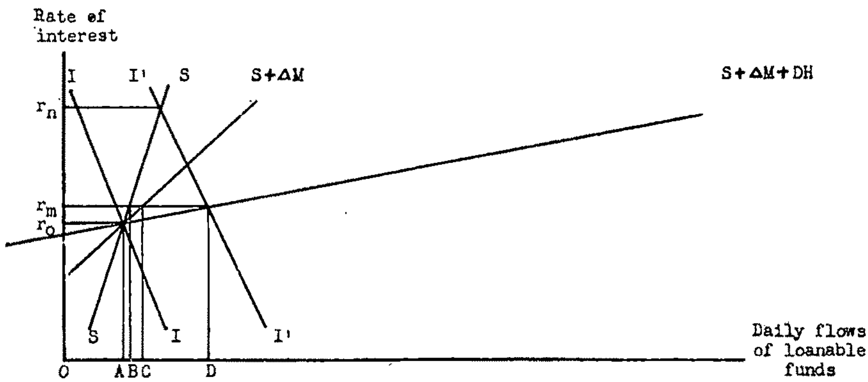

FIGURE 1

opened up between saving and investment at the former rate of interest, thus preventing the change in the market rate of interest which would otherwise have occurred, and which, had it occurred, would have stabilized the aggregate demand for goods and services—the sum of consumption plus investment spending. Since aggregate demand is not stabilized by the interest rate, inflation or deflation must occur in the price level, continuing until the natural rate happens to return to equality with the market rate, or until the banks are forced or induced (by exhaustion or accumulation of reserves) to let the market rate find the new natural level. (Since he assumed perfectly flexible wages and prices, only price and wage changes but neither unemployment nor increased output could result.)

What Keynes' speculative demand for money analysis added was the idea that, even if the banks could be made to behave, and the quantity of money were stabilized, private wealth holders would systematically hoard or dishoard in a way that would prevent the adjustment of the rate of interest to changes in its natural level, thus again requiring changes in the aggregate demand for goods and services. (Because Keynes assumed rigid wages, an alteration of aggregate demand would produce changes in real output and employment. However, if we substitute flexible wages, the result is, like Wicksell's, indefinite inflation or deflation.)[7] In other words, Keynes' speculators play the same role as Wicksell's banks in preventing the interest rate from performing its classical function of stabilizing aggregate demand against shifts in saving or investment propensities.[8] What is thus at issue in the

[7] Which proceeds until desired transactions balances are sufficiently altered by price-level changes that the rate of interest can again find its "natural level."

[8] It is interesting to reflect upon the similarity of the behavior ascribed by Wicksell to bankers and by Keynes to wealth holders in general. Wicksell suggested that the initiative for changes in the volume of bank lending did not usually originate with the banks but arose from fluctuations in investment prospects. A temporary reduction of

question of the speed of the hoarding or dishoarding adjustments is whether speculation interferes seriously or only to a minor extent with the stabilizing influence which the interest rate would otherwise automatically have on aggregate demand (assuming ΔM were zero). Similarly, the empirical significance or triviality of Wicksell's proposition depends on whether the magnitude of the potential flow of money creation by banks is great or small relative to current saving and investment flows.

If the view expressed above is correct, that the slope of the hoarding-dishoarding schedule dominates the short-run determination of the interest rate, then the rate of interest is, in the short run, a very poor automatic stabilizer indeed; and other adjustments, operating through changes in output and employment or wages and prices, or both, must bear the initial brunt of changes in saving or investment propensities. (Actually, in the particular model represented by our equations—which, like Wicksell's assumes perfectly flexible wages and prices—the interest rate would, *in the end*, fully adjust to any new conditions of thrift or productivity of investment, leaving real income at its initial level. But in the short run aggregate demand must shift, altering the positions of S, I, and DH schedules, until the adjustment is completed.)

3. There is one problem overlooked in the foregoing formulation, and it is a problem to which Tsiang pays particular attention. In determining the amount of hoarding or dishoarding (speculative supply or demand for securities), we must first subtract from the total stock of money the current transactions demand. Tsiang appears to consider one of his most important contributions to be the explicit formulation of this element as the sum of today's consumption plus investment. In our view, this particular result lacks either generality or great significance. The transactions demand (a stock variable) is equal to the sum of one day's flow of consumption plus investment only on some very special assumptions. These include, apparently, the assumption of complete integration in business, the assumption that all income payments are simultaneous, and, as well, the impossible "perfect overlapping" of payment periods.[9] It would seem to be more general simply to specify current transactions demand as some fraction (multiple) of the current level of income (PY). More damaging to Tsiang's argument is the possibility—which could easily be defended on grounds of realism—that the

investment incentives would reduce the volume of new security issues. Savers, willing to absorb the same volume of securities as before, would tend to bid up security prices. As security prices rose above "normal" levels, banks would sell from their portfolios, in order to secure capital gains and to avoid later capital losses. This normal and rational (speculative) action by banks prevented security prices from rising as far as they otherwise would. Keynes merely observed that rational nonbank wealth holders had the same stability of interest rate expectations as banks, and the same desire to make capital gains and avoid capital losses, with the same consequences. However, while institutional changes or central bank controls could cure the destabilizing behavior of banks, private speculation may not be so easily handled.

[9] See H. S. Ellis, "Some Fundamentals in the Theory of Velocity," *Quart. Jour. Econ.*, May 1938, LII, 431-72; reprinted in *Readings in Monetary Theory* (Philadelphia, 1951), pp. 89-128.

transactions demand may depend not on current but on lagged income. Although there can be no great objection to Tsiang's particular formulation, it is certainly not a matter for immutable generalization, in the light of which one should (as does Tsiang) criticize as clearly wrong Keynes' discussion of the "demand for finance."

Even though we may grant, with Tsiang, that a change in the current volume of total demand $(C + I)$ may involve a concurrent change in the transactions demand, thus affecting the current rate of interest, the important fact would still appear to be that the speculative release or absorption of funds is, in the short run, the more significant influence on the interest rate. Given speculators' interest rate expectations, speculative sales and purchases of securities will dominate the short-run determination of security prices (just as such sales and purchases dominate the short-run determination of wheat or cotton prices).

4. It was pointed out earlier that all loanable funds analyses of interest assume that there are lags in the reaction of saving and investment to income change. Otherwise, it would not be possible to draw unambiguous schedules of saving and investment (as functions of r) at all. It is, again, an empirical judgment, probably carelessly made, that justifies this treatment. The writer is not disposed to quarrel with the assumption of these lags. But as one thinks at all about the realism of these lag assumptions, he is certainly led to question the empirical assumption, invariably made in loanable funds analysis, that while the effect of Y on saving and investment is lagged, the effect of r is simultaneous. Consider first the saver. If we adopt a Robertsonian view of his institutional setting and intellectual processes, we could as well lag the interest rate as the income effect: we could have him decide, at the beginning of the day (knowing yesterday's but not today's income and interest rate), what he would consume and save; and carry out that plan, regardless of what today's income and interest rate turned out to be. (The usual assumption causes him to revise his plan if the interest rate changes but not if income changes!) This would leave for current decision, in the light of instantaneous developments in the loan market, only his portfolio adjustment, *i.e.*, what he should do with his current new saving plus his accumulated past savings (the latter, of course, being by far the larger component). Thinking more realistically about actual consumers, we are led to doubt the importance of *any* effect of the interest rate on saving. But even if we accept such an effect, we are surely led to suppose that any effect of interest rate change that may exist is likely to be at least as slow in appearing as is the effect of income change. This would suggest that the saving schedule in Figure 1 should be a vertical line.

On the investment side, too, one wonders whether the interest rate effect should not also be lagged. To be sure, the timing of *borrowing* (which is what is relevant to the market rate) may very well be advanced or delayed depending on current market developments. But to the extent that this is independent of the actual *expenditure* of the borrowed funds, then we are dealing again with a speculative hoarding-dishoarding situation, based upon

the relation of current to expected future rates of interest. Thus the investment schedule might also become vertical.

If we should go all the way and make both saving and investment independent of the current rate of interest (though dependent, at least in the case of investment, on an earlier rate level), then the short-run rate of interest would depend even more heavily on the terms on which wealth holders are willing to release or absorb funds, and the banks to create or extinguish them. In these circumstances, the level of income—and perhaps other variables—would have to absorb almost the full effect of discrepancies between saving and investment (although in the longer run the rate of interest might still play a major role).

5. From the foregoing, it should not be difficult to understand why the Keynesian formulation in terms of stocks is usually identified with a static or equilibrium theory, and the loanable funds with a dynamic analysis. The usual liquidity preference formulation does not progress beyond the identification of an asset-holding equilibrium [equation (9)], the situation in which the supply and demand for money are equal. The loanable funds analysis, however, if it is to constitute anything more than a trivial rearrangement of the stock analysis, must consider hoarding or dishoarding as a flow of funds, positive or negative (*i.e.*, nonzero) in amount. But this involves a disequilibrium situation with respect to stocks. For this analysis we need more information than the stock analysis provides—namely, we need to know something about the speed of these disequilibrium flows.

The difference of subject matter between the two theories is analogous to the difference between capital theory and investment theory. Capital theory usually deals with the conditions of capital stock equilibrium—a state of zero net investment. Investment theory, on the other hand, deals (or should) with this question: how fast—at what rate—will the (nonzero) flow of investment occur when the capital stock is not in equilibrium? As is the case for loanable funds analysis, investment theory requires more information than is provided by capital theory.

One could also put it that the loanable funds analysis is broader, because it includes within its scope both equilibrium and disequilibrium positions. That is, when DH and ΔM are respectively equal to zero, the system is in equilibrium (as far as monetary relationships are concerned). In this special case, the equality between the supply and demand for funds reduces to an equality between saving (the only remaining element in the supply of funds) and investment. This equality is formally identical with the equality between income and the sum of consumption and investment, a proposition associated with the liquidity preference analysis.

It seems to be a matter of literary taste whether we express it that the theories are identical (because they predict the same equilibrium values), that the liquidity preference theory is more fundamental (because it identifies the equilibrium), or that the loanable funds theory is more general (because it can handle both equilibrium and disequilibrium). In any case, the two are closely related, and, properly understood, not in conflict.

II. *Some Problems of Interest Theory*

We close with two final and more general observations on interest theory.

1. Keynes' innovations in the field of interest rate theory were of two kinds. In the first place, he formulated the problem in stock rather than in flow terms. In the second place, he postulated a kind of behavior by wealth-holders (the speculative demand for money), which had either not been considered in the previous literature, or the significance of which had not previously been grasped. The first of these innovations is one of form, the second of substance. The preoccupation of most subsequent discussion with the matter of form seems to have had the consequence that the substance of Keynes' contribution to interest theory has received insufficient examination. Some critics have tried to show the superiority of any loanable funds approach, or the error of any stock approach. Others, sensing that there need be no conflict, have tried, with generally unhappy results, to show how the Keynesian speculative demand can be incorporated into a loanable funds framework. In so doing, they have, like Tsiang, not examined the substance of what Keynes had to say about speculative behavior. Still awaiting really adequate examination, therefore, are these among other questions about Keynes' substantive innovation:

A. Keynes tended, despite formal disclaimers, to assume a stable speculative demand schedule, and to deal only with movements along this schedule. That is, he assumed a given level and structure of interest rate expectations by wealth-holders. But how important are movements along a given schedule, as compared with shifts in the schedule (that is, changes in the level or structure of interest rate expectations)? What are the causes of such shifts (other than changes in central bank policy, or in the financial community's understanding of that policy)?

B. May not a change in the current interest rate itself cause changes in the level of expected future rates; sometimes even a larger change in expected than in present rates? What determines whether the elasticity of interest rate expectations is zero or less than one (as Keynes assumed), one (as the classical writers in effect assumed by ignoring the problem), or greater than one (as fears of "disorderly market" seem to assume)?

C. Although some extension of asset preference theory has occurred, in particular by bringing in loans of different maturity in place of Keynes' single rate, much asset preference theory is purely formal, lacking the substance which—correct or not—Keynes' ideas had. In particular, there is urgent need for the development of a theory, with empirical substance, that includes *shares* as well as bonds and money. (Keynes had some striking things to say about the determination of share prices, but they were not integrated with his asset theory, which assumed that people either owned capital goods, bonds, or money.)

2. We began by noting that any analysis of the interest rate must be conducted within the framework of a completely specified macroeconomic model. We argued, therefore, that it was not possible to speak of an interest rate theory independently of the larger model. The way in which loanable

funds theories escape this problem is to assume a structure of lags such that the current values of income and certain other variables do not affect (although they are affected by) the current determination of the rate of interest. We have questioned the reasonableness of these specific lag assumptions. But even if a particular structure of lags should permit us to isolate the short-term determination of the rate of interest from the larger framework of a macroeconomic model, the larger framework is still there, and is more important than the little detail we have pulled out. At best, the usual loanable funds analysis is a "one shot," single-stage affair. This kind of dynamics is not necessarily better than statics. What we need, rather, is a process analysis, which links today's values not only with yesterday's but with tomorrow's and those of the day after.

It is now generally understood that what happens in disequilibrium depends on the relative speeds and sequences of adjustment of the various economic subjects to changing events (values of variables). With different assumptions about these speeds and sequences we can get very different patterns of movement of variables in disequilibrium. Also, depending on the same speeds and sequences, the equilibrium of the model may be highly stable (*i.e.*, quickly re-established), barely stable, or unstable. To carry forward a process analysis even of the interest rate thus requires that we know the speeds and sequences of all other adjustment in the system—of wage changes to employment, of consumption changes to income, of output changes to aggregate demand or real wage, etc. Disequilibrium analysis, just as much as equilibrium analysis, requires the framework of a completely specified macroeconomic model.[10] The lack of such a framework constitutes the most serious limitation of the usual loanable funds analysis of the interest rate.

GARDNER ACKLEY*

[10] It is for this reason that we have not attempted to present a dynamic model corresponding to the static one presented earlier. The most strategic element in such a (short-run) model is, in our judgment, not the interest rate equation but the complex equation or equations describing the short-run adjustment of output to changes in demand. These output (or inventory) reactions must be specified for any process analysis even of the interest rate. To present and defend a model with even faint claims to realism is most difficult (see G. Ackley, *loc. cit.*), and would be inappropriate here.

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Reply

I shall discuss the five objections which Gardner Ackley has raised to my previous article in the order in which they are enumerated at the beginning of his comment.

1. In spite of my endeavor to show that the liquidity perference theory and the loanable funds theory are really different ways of saying the same thing in the analysis both of stationary equilibrium and of dynamic process, Ackley insists that the two theories have different subject matters. According to him, "the former identifies an asset-holding equilibrium, whereas the latter

deals with what happens in disequilibrium."[1] He admits that in a stationary equilibrium, the two theories can be easily identified, although he calls the latter "a mere trivial re-arrangement of the former."[2] In any other situation, however, he balks at the attempt to reconcile the two theories, because he is of the opinion that the liquidity preference theory "never raises, much less answers" the question of asset-adjustment should the existing asset-holding position get out of equilibrium.[3] This actually constitutes the substance of his second objection to which we shall presently turn.

Before we do, I should like to express my doubt whether the liquidity preference theory as Ackley understands it, viz. the original Keynesian version that lays emphasis chiefly on the speculative demand for money, is consistent with a state of general stationary equilibrium as implied in his illustrative model. For, according to Keynes, the speculative demand for money (liquidity preference proper) owes its existence mainly to the general expectation that the rate of interest will be different from what it is. If every economic variable should attain its equilibrium value and hence presumably no further changes were to be expected, then the speculative demand for money would be nonexistent.[4]

2. Ackley contends that "the difference between . . . the actual and desired stocks of cash is still measured in stock terms."[5] It cannot be given a time dimension and made comparable and additive to flows of savings, investment, etc. in a dynamic theory of interest, unless we know the speed at which the desired changes in the stock of cash can be carried out.[6]

I doubt very much whether the concept of the speed of adjustment of the actual cash holding to the desired cash holding (as distinguished from the time lag in decision making) is of much help in this connection. Speaking in microeconomic terms, there is no reason to believe that the adjustment of one's cash holding by, say, $10,000 would necessarily take any longer than (let alone ten times the time required for) the adjustment of one's cash holding by $1,000. What then is the speed of the adjustment of one's cash holding? Surely the speed is so flexible and capable of so great variation in accordance with the magnitude of the desired adjustment as to make it meaningless to speak of a speed. In macroeconomic terms, the situation is not much different. Judging from the enormous fluctuations in the volume of transactions per calendar day that are capable of happening on the stock, bond and money markets combined, we must conclude that the speed of adjustment of aggregate idle cash holdings is also extremely variable in

[1] See p. 662 above.

[2] See p. 664 above.

[3] See p. 666. See also p. 671 on which he states, "The usual liquidity preference formulation does not progress beyond the identification of an asset-holding equilibrium, . . . the situation in which the supply and demand for money are equal."

[4] See Section 3 below for more discussion on this point. See also D. H. Robertson, "Alternative Theories of the Rate of Interest," *Econ. Jour.*, Sept. 1937, XLVII, esp. p. 433.

[5] See p. 666 above.

[6] *Loc. cit.*

accordance with the aggregate magnitude of adjustments that are desired. That is why it seemed to me as reasonable an assumption as any that whatever changes in the stocks of idle cash may be desired can be carried out instantaneously when we are dealing with a minimum time unit, the Robertsonian "day," which is presumably much longer than a calendar day.

3. Ackley contends that if the adjustment of the holdings of cash balances to changes in the interest rate were as quick as I assumed, the speculative element would dominate short-run interest rate determination.

He argues that since "the amount of hoarding that can occur in one day (on Tsiang's assumption) is limited only by the total amount of securities outstanding, which must be hundreds of times as large as daily saving; the amount of dishoarding [is limited] by the total of idle cash," hence "the magnitude and slope (with respect to r) of the hoarding-dishoarding component should completely swamp saving and investment in the supply and demand for funds."[7] This is equivalent to saying that because the absolute limit to certain variable is very large, the actual magnitude of that variable must be very large too. In my opinion there is far more theoretical ground to believe that normally the flow of hoarding or dishoarding is unlikely to be an overwhelming component in the demand or supply of funds than otherwise.

Although Ackley regards much of post-Keynesian asset-preference theory as "purely formal, lacking the substance which—correct or not—Keynes' ideas had,"[8] these later discussions have at least made it clear that what Keynes described as speculative adjustments of the holdings of long-term securities and idle cash are really speculative arbitrages between the long-term interest rate and the average of the current and expected future short-term rates.[9] The discussions of the relationship between the long and short rates since the *General Theory* have made it quite clear that speculative selling of long-term securities in expectation of a future rise in the long-term rate by and large merely causes a shift of funds from the long-term capital market to the short-term money market (and vice versa). There is no reason to expect, in normal circumstances anyway, that the speculator who sells his long-term securities will hold the proceeds in idle cash.[10]

[7] See p. 667 above.

[8] See p. 672 above.

[9] See particularly, J. R. Hicks, *Value and Capital* (Oxford, 1939) Ch. XI, pp. 141-52; N. Kaldor "Speculation and Stability," *Rev. Econ. Stud.* Oct. 1939, VII, 1-27; M. Kalecki, *Essays in the Theory of Economic Fluctuations* (London, 1939), pp. 107-15; D. H. Robertson, "Mr. Keynes and the Rate of Interest," *Essays in Monetary Theory* (London, 1940) esp., pp. 29-33; S. C. Tsiang, "A Note on Speculation and Income Stability," *Economica,* Nov. 1943, N.S., X, 286 and D. H. Robertson, "Some Notes on the Theory of Interest," *Money, Trade and Economic Growth,* in honor of J. H. Williams (New York, 1951), pp. 193-209.

[10] See Kaldor, *op. cit.,* pp. 13-14, Tsiang, *op. cit.,* pp. 286-88 and Robertson "Some Notes on the Theory of Interest," *op. cit.,* pp. 205-08. It is of considerable interest for *Dogmengeschichte* that this is in fact Keynes' own view in his *Treatise.* The bears will either put the proceeds of their sales in savings deposits, or use the "bear funds" to buy Treasury bills, to grant loans to the money market at call, or simply to pay off their margin debts to brokers. See Keynes, *A Treatise on Money* (London, 1930), Vol. I, p. 252.

Thus, when we have for the sake of simplification aggregated the long-term and short-term capital markets into a single market with a single rate of interest, as I tacitly did in my article under comment, we may regard speculation in long-term securities as an activity which merely shifts the pressure of excess demand or supply from one sector of the aggregate money market to another sector, but which does not by itself lead to wholesale draining away of funds from the market into idle speculative cash balances or conversely, no matter how rapidly portfolio adjustments are made. It is for this reason that I believe that hoarding or dishoarding is unlikely to be an overwhelming factor in the determination of the interest rate unless the short-term rate has already reached such a low level that it barely compensates for the cost and bother of investing idle funds in short-term assets.[11] It is for this reason also that I prefer the more old-fashioned term "idle cash balances" to the term "speculative cash balances," as I believe the main reasons for holding idle balances in excess of transaction requirements are precaution and inertia rather than expectation of future changes in interest rate or in values of long-term assets.

4. Ackley criticizes my identification of the transaction demand for money with the level of current consumption plus investment as resting on questionable assumptions and lacking generality. He maintains that "it would seem to be more general simply to specify current transactions demand as some fraction (multiple) of the current level of income (PY)"[12] as he does in equation (7), viz., $M_T = KPY$.[13]

He does not seem to realize, however, that so long as K is assumed to be a constant, one can always vary the time unit chosen for the measurement of money income by $\frac{1}{K}$ times so that the above equation can be reduced to $M_T = PY$. Surely he should have no objection to this procedure, since elsewhere in his comment he asserts that, with Keynes' supply and demand for money analysis (the liquidity preference theory), the choice of time unit "makes absolutely no difference."[14] With such an equation for the transaction demand for money as his equation (7), the choice of time unit can only be said to make absolutely no difference to the demand for money and the equilibrium interest rate if K varies in exact inverse proportion to the length of the time unit chosen for the measurement of income flow, so that, whatever the time unit chosen, the transaction demand for money would remain the same.

Our identification of the transaction demand for money with the level of current consumption plus investment was merely the expository device of adopting as a time unit the period during which the average velocity of transaction balances is unity. It rests on no more questionable assumptions and is no less general than to specify current transaction demand for money

[11] See Tsiang, *op. cit.*, pp. 290-2.

[12] See p. 669 above.

[13] See p. 663 above.

[14] See pp. 665-66 above.

as some constant fraction (or multiple) of current money income.

Even when this velocity (or fraction) is not constant, as in times of hyperinflation or possibly even when there are very large changes in the interest rate, we would merely have the embarrassment that the time unit we have adopted is not a constant one and that a stable income flow measured in our flexible time units may be actually expanding or contracting when measured in some constant natural time units. Nevertheless, this possibility does not detract from the value of this expository device in clarifying the true nature of the "demand for finance" and in demonstrating that changes in the investment demand for funds or in the propensity to save have a direct effect upon the interest rate instead of having merely an indirect effect through the multiplier process.

5. Ackley further criticizes as empirically implausible the universal assumption in loanable-funds analysis that income effects on savings and investment are lagged although interest effects are assumed to be simultaneous. Since, however, the interest rate is a sort of price—the price for loans according to the loanable funds theory and the price for the holding of money balances according to the liquidity preference theory—it surely is evident that at least some effects of the price upon various elements of demand and supply are immediate. The function of price in a market without rationing or restriction is to bring the current (not lagged) demand and supply into equality. Conversely, the price can be said to be determined by the equilibrium between the demand and supply, only when demand and supply are, at least partially, unlagged functions of the current price. If the effects of the price (the interest rate in the present case) should all be lagged, there is nothing left to determine the rate of interest in the present.

I would not deny that past interest rates may have some lagged influences upon plans for current consumption, investment, adjustment of one's cash holdings, etc. However, we do not really know much about the functional relationships between past interest rates of different periods back and the various current plans, in particular whether the lagged influences of past interest rates are cumulative and can be added to the immediate effects of the current interest rate, or whether they are to some extent mutually offsetting. As my main purpose in the article under comment was to reconcile the loanable-funds approach (money-flow approach) to the liquidity-preference approach (money-stock approach) at their usual level of abstraction, I may be excused for not introducing new complications about which we know very little.

Ackley is also unhappy about the absence of current income in the functions for savings and investment in the formulation of loanable funds theories such as mine. This actually follows naturally from the attempt of loanable funds theorists (or process analysts) to analyze the day-to-day determination of the interest rate on the money market by means of, so to speak, a series of cinematographic pictures. Under the specific assumption I made, the operations on the money market are supposed all to be carried out at the very beginning of the day before other types of transactions can be executed

during the later part of the day. Thus at the beginning of the day, the only income data available to the lenders and borrowers are incomes of the past periods and their own expectations of future incomes based upon past experiences. When loan transactions are made, the incomes to be received during the current day are still unknown.[15]

However, the fact that only lagged income is included in the savings and investment functions does not in the least mean that "there is no current 'feedback' from income to saving, investment, and the interest rate"[16] and that "the usual loanable funds analysis is a 'one shot,' single-stage affair."[17] A simple illustration should make this clear. Suppose we have a simple and much-discussed model of the interaction between the acceleration and multiplier principles as the following:—

$$C_t = cY_{t-1} \tag{1}$$

$$I_t = a(Y_{t-1} - Y_{t-2}) \tag{2}$$

$$Y_t = C_t + I_t \tag{3}$$

Hence:

$$Y_t - (c + a)Y_{t-1} + aY_{t-2} = 0 \tag{4}$$

Here too we have only lagged incomes in both the consumption and investment functions. Does it follow that the resulting difference equation (4) is a "one shot, single-stage affair" with no feedback from income to savings and investment?

6. Lastly, although he has not enumerated it at the beginning of his comment as one of his objections to my article, he stresses that "any analysis of the interest rate can only be conducted within the framework of a completely specified macroeconomic model, in which all other relevant economic magnitudes are likewise determined."[18]

It is true that all economic variables are to a greater or smaller extent mutually dependent. It is obviously impossible, however, to include in a theoretical model all economic factors that have any relevance at all to the problem under discussion. Certainly Ackley himself has not succeeded in doing this in his model of nine equations. Each economist must make his own selection of variables that he regards as of primary significance. His model is to be criticized only by pointing out concretely how his exclusion of certain other relevant factors leads to such substantial misrepresentation of the economic process under study as to mislead rather than to further understanding of the problem. Ackley has not done this.

S. C. Tsiang*

[15] A more valid question would be why past incomes of more than one period back and expectations of future incomes are not specifically introduced. I would have to make the same plea of ignorance and desire for simplification as with respect to the effects of past interest rates.

[16] See p. 665 above.

[17] See p. 673 above.

[18] See p. 663 above; see also p. 672.

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A Macroeconomic Theory of Wages: Comment[1]

Professor Sidney Weintraub in his recent article[2] introduces labor-demand-and-supply functions which are related to money wages. In the transition from real to money terms, however, an error creeps into the analysis.

Weintraub has developed a labor-demand schedule, where the quantity of labor demanded is a function of the money wage, as follows. First, given the stock of equipment, the money-wage rate, and the production function for labor, an aggregate supply or aggregate money-proceeds function can be constructed (Weintraub's Z function, p. 836). A certain level of output (employment) is associated with each point on this aggregate-supply curve.[3] Before the demand for labor at a particular money-wage rate can be determined, however, it is necessary to construct a function relating aggregate money demand, for that money-wage rate, to the level of employment. Each money wage thus gives a different pair of D and Z curves and a different point of intersection. Our demand schedule for labor then relates the levels of employment, indicated by the intersection of each pair of D and Z curves, to the money-wage rate on the basis of which the curves are constructed.

Constructing a labor-supply curve as a function of money wages poses additional problems. Since Weintraub assumes that workers have given income-leisure preferences and that they are not influenced by a money illusion, the supply of labor is a unique function of the *real* wage. Therefore, a labor-supply function formulated in terms of money wages must be based on some relationship between real wages and money wages. This relationship Weintraub obtains by assuming that the real wage corresponding to any money wage is equal to the marginal product of labor for the level of employment determined by the effective demand, which is, as indicated above, a function of the money wage.[4] In other words the quantity of labor supplied at any given money wage is dependent on the real wage which corresponds to the level of employment demanded at the indicated money wage.

In his final section (pp. 851 ff.) Weintraub considers the effects of a shift in the labor demand schedule while assuming a classical rising supply function of labor in real terms.

> With labor-productivity functions unchanged, the D_L curve will move rightward and each money wage rate will now signify a *lower* real wage than before. Inevitably the D_L shift will carry with it a displace-

[1] The author is indebted to members of an economics seminar at Northwestern University and particularly to Robert Eisner of the same institution for many valuable suggestions.

[2] "A Macroeconomic Approach to the Theory of Wages," *Am. Econ. Rev.*, Dec. 1956, XLVI, 835-56.

[3] *Cf.* J. M. Keynes, "The Employment Function," *The General Theory of Employment, Interest, and Money* (New York, 1936) pp. 280 ff., in which Z is defined, however, in wage units instead of money.

[4] The money wage affects the real quantity of money and the real creditor position of the economy thus influencing demand through the rate of interest and the "Pigou effect."

> ment of the S_L function inasmuch as the latter is geared to the level of real income implicit in D_L. . . . Essentially, the effect is to curb the expansion in employment while accommodating an important wage movement and price-level upswing. It can be inferred from this that if increases in investment demand occur, a rather small change in the employment figure is capable of accompanying a fairly sharp change in the money-wage level.[5]

But here Weintraub is in error. There will not be "a rather small change in the employment figure." Regardless how much Weintraub's D_L function shifts as a result of changes in investment demand (or for any other reason),

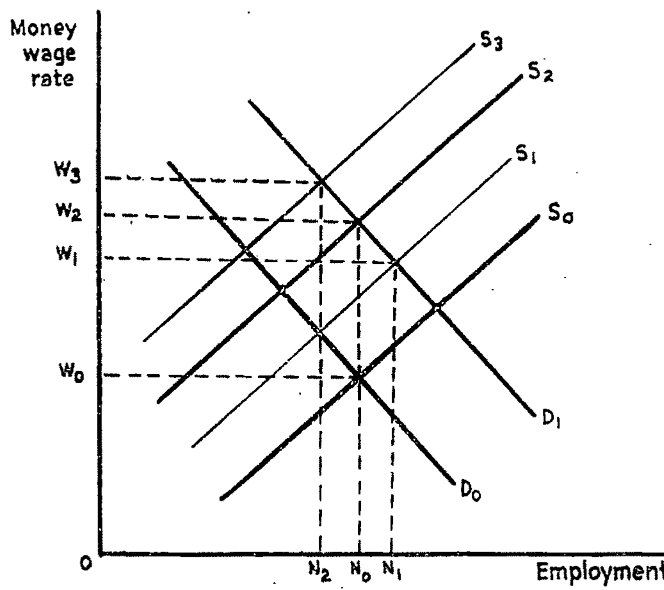

FIGURE 1

the S_L function must always shift exactly enough to prevent *any* change in employment. This can be demonstrated as follows.

Before the shift in the labor-demand schedule, employment is N_0 (Figure 1). The problem now is to determine how much the money-labor-supply function (which is fixed in real terms) will shift to compensate for the shift in labor demand. First, suppose that S_0 could shift to S_1 as Weintraub suggests.[6] At the new money wage rate, W_1, employment would be N_1. Since employment would then have increased (from N_0 to N_1), assuming a declin-

[5] Weintraub, *op. cit.*, pp. 851-52.

[6] His diagram (p. 851), assuming it is consistent with his statements (pp. 851-52) concerning changes in employment, apparently indicates a small increase in employment due to the shift in the labor-demand-and-supply functions.

ing marginal product of labor,[7] the real-wage rate would have had to decrease. This situation, however, is inconsistent with the assumption that labor supply is a unique (in this case rising) function of the real wage. S_1 shows that *more* labor is demanded and is *supplied* at the lower real wage, which must correspond to the higher employment N_1, than had been supplied at the higher real wage corresponding to the lower employment N_0.

Similarly, suppose that S_0 could shift to S_3. Now the money-wage rate would be W_3 and employment N_2. Since N_2 is less than N_0, the real-wage rate would have had to increase. But S_3 shows that less labor is *supplied* at the higher real-wage rate, which must correspond to the lower employment N_2, than had been supplied at the lower real wage corresponding to the higher employment N_0. Thus supply curves S_1 and S_3 are inconsistent with the assumption that labor supply is a positive function of the real wage. The only supply functions consistent with this assumption are those which intersect D_1 directly above N_0, *e.g.*, S_2 in Figure 1.

Weintraub has perhaps failed to realize that the intersection of his money-demand-and-supply curves must be at Keynesian full employment in view of his rejection of money illusion. But in the Keynesian system, at Weintraub's level of abstraction,[8] the actual level of employment is affected by changes in investment demand only if involuntary unemployment exists. Neither changes in investment demand nor money wages can then affect the level of *full* employment in either Keynesian or classical terms. For full employment as defined by Keynes and the "Classicists," and apparently by Weintraub, depends upon the production function and the real-supply curve of labor.[9] These are unaffected by changes in the inducement to invest (Weintraub, p. 851) and are entirely unrelated to the level of money wages.

Weintraub has developed an interesting technique for picturing labor-demand-and-supply functions in terms of money wages. But his concluding sections, in which he attempts to utilize this technique to indicate the effects of changes in money wages on employment and of changes in aggregate demand upon money wages and employment, cannot be sustained without amendment.

The necessary amendment might take either or both of two forms. (1) The possibility of involuntary unemployment may be recognized in the supply-and-demand curves for labor. The intersections of these curves may not represent an attainable equilibrium, or they may not intersect at all at a positive money wage (whether or not the demand curve for labor is totally inelastic, as Weintraub defines the Keynesian case, p. 842). The precise level of employment (the quantity of labor demanded), along with the real wage, and the precise level of *un*employment (labor supplied minus labor demanded) are then exogenously determined by the money wage. (2) Money

[7] Weintraub, *op. cit.*, p. 841.

[8] Given income-leisure preferences (p. 847) and no consideration of possible changes in relative prices of wage goods and nonwage goods.

[9] *Cf.* J. M. Keynes, *op. cit.*, pp. 4-7.

illusion may be allowed in the labor-supply function. Then changes in aggregate demand which affect the money-wage rate may change the "full-employment" supply of labor.

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Reply

Mr. Junk's comment, I think, facilitates the extension of my previous paper somewhat further towards a definition of involuntary unemployment and a theory of money-wage changes. What he has to say concerns primarily the last two pages of the article, or an implication of the main theme. Yet if the earlier portion still survives—and his remarks do not lead me to believe otherwise—the necessary modifications for shifts in the functions ought not be hard to find, without departing substantially from the original text.

Junk's basic criticism is that in the case of labor positively responsive to real wages, a supply shift which increases equilibrium employment (as does his S_1 curve) and a supply shift which decreases employment (his S_3) are both invalid, *i.e.*, inconsistent with the hypothesis of diminishing returns with given equipment in conditions of rising investment demand. Hence, he argues, the equilibrium employment level must remain unchanged.

I think this proves too much. While the S_3 curve, with its smaller equilibrium employment can be eliminated as contrary to "usual" experience, without at the moment stopping to analyze it in more detail, the same is not true of S_1. Conceptually, it is possible for reduced aggregate consumption to go along with higher investment (measured in employment units), higher real wages, and higher employment. For example, moving up along the labor-supply (or demand) curve involves higher money wages and higher prices. Thus through the price rise the income shift from rentiers to profits can diminish aggregate consumption; as I suggested in the earlier article (pp. 844-45) this income shift was one of the factors tending to support the classical version of the labor-demand curve. In the present case, with higher investment demand shifting the full labor-demand curve the ensuing income distribution at the higher prices at each money wage is also adverse to the real rentier position and favorable to profits. The cut-back in rentier consumption through "forced-savings,"[1] together with the higher interest rate[2] and the inroads of the corporate and personal income tax structure which can block an offsetting rise in entrepreneurial consumption, will limit the size of the price rise on consumption goods at each money wage; this thereby provides a margin which helps maintain the real-wage position of labor at

[1] I have made use of the concept of "forced-savings" in an article on "The Micro-Foundations of Aggregate Demand and Supply," to appear in the *Economic Journal*. I think the concept has been unduly neglected in recent years.

[2] Thus it may be unwise to exclude the effects "of possible changes in relative prices of wage goods and nonwage goods." (Junk, footnote 8). If we argue that savings come largely from nonwage earners and that the savings are positively responsive to interest, then this would be another factor tending to cut nonwage consumption.

each money wage. Put in another way, as we move up from Junk's D_0 to D_1 *at each employment volume* the rentier consumption, and so aggregate consumption, is reduced without an offsetting entrepreneurial rise, so that Junk's labor supply curve need not be pulled as far back as his S_2 but can lie closer to S_1. In effect then, in equilibrium the reduced rentier consumption would make room for higher real wages for labor.[3] This would involve, as equilibrium implications, reduced aggregate real consumption along with increased aggregate wage-earner consumption, higher real wages, and higher real investment.

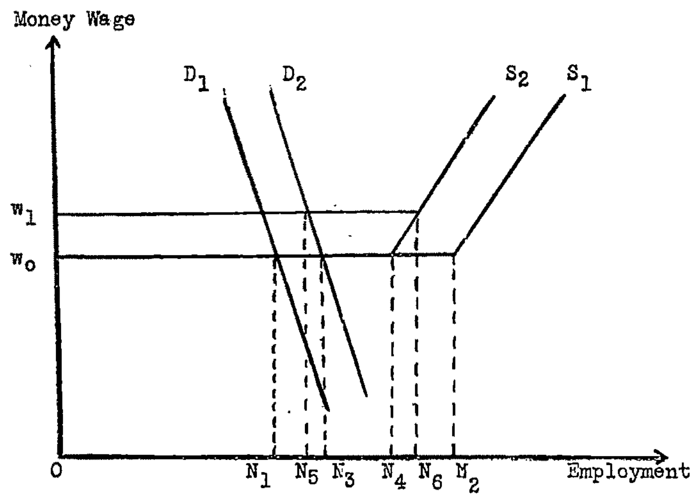

FIGURE 1

I would agree that the decline in aggregate real consumption after a rise in the investment function is at odds with usual arguments and with real phenomena in unemployment situations.[4] It would be this strange concatenation that would invite a re-examination of the premises of the labor supply curve, rendering suspect one drawn throughout its length as positively responsive to real wages. Let us now consider a likely amendment to incorporate involuntary unemployment within the system.

The simplest, and a reasonably realistic, procedure would be to draw the positive real-wage-responsive labor-supply curve as having a perfectly elastic "going-wage" bottom, as at w_0 for the supply curve S_1 in Figure 1. This might be regarded as given either by minimum wage laws, labor-union wage scales, or as a carry-over customary wage standard from the historic past: in

[3] *Cf.* a similar remark by Joan Robinson, *The Accumulation of Capital* (Homewood, Ill., 1956), p. 271. Her Book V contains, I think, several illustrations of "forced-savings," though she refrains from the use of this term.

[4] It would be this case in which a small change in employment is capable of accompanying a sharp change in the money-wage level. See "A Macroeconomic Approach . . . ," *op. cit.*, p. 852.

a sense it would be legitimate to regard this wage level as an exogenous datum. In Figure 1 then, with labor demand D_1 (constructed as in my original article), the equilibrium employment would be ON_1 while the full labor offering at the going money and implicit real wage would be ON_2, with the difference $(ON_2 - ON_1)$ constituting a measure of involuntary unemployment. As drawn, and exaggerated purely for visual illustration, less than half of the labor force desiring jobs would secure employment.

Suppose now that through a strengthening of the investment function the labor-demand curve is shifted to D_2. In the absence of labor supply-and-demand interdependence the immediate effect is to erase some involuntary unemployment, in amount N_1N_3. However, with somewhat higher prices for consumer goods (when produced under conditions of diminishing returns) at the w_0 wage, there is now a leftward move in the positively responsive segment of S_1, to S_2 say.[5] Thus from the supply side, too, some involuntary unemployment is eliminated, with the total unemployment magnitude amounting in the end to $(ON_4 - ON_3)$ compared to the original $(ON_2 - ON_1)$ amount: involuntary idleness will be lower in the new investment situation so long as the real wage is reduced.

Considering the pressure on the labor market from both sides, from labor demand and supply, with the tightening of the market we can assume that events become propitious either for new wage demands by unions or higher wage offers by entrepreneurs faced individually by smaller pockets of unemployment; the latter sequence would be particularly relevant if we admitted more heterogeneity in the labor market. From either direction the sequel to the narrowed unemployment margin involves a raising of the wage floor, from w_0 to w_1, with a consequent reduction in employment to ON_5 and an extension of involuntary unemployment to $(ON_6 - ON_5)$.

Thus, on this interpretation it is the rise in labor demand and decrease in labor offerings at the going wage level which absorbs some of the involuntary unemployed, tightens the labor market, and leads causally to higher money-wage levels. Of course, trade union demands for money-wage hikes may be quite independent of the size of the involuntary unemployment gap, but they are likely to be most successful and reflect market forces most closely when, through rising investment and the multiplier the labor market has first been tightened compared to an easier (past) situation. And the higher money wage, when won, has in part the effect of increasing involuntary unemployment and easing the labor market—given the juxtaposition of the classical labor-demand curve and the flat-bottomed positively responsive labor supply curve.

If anyone wishes to interpret the perfectly elastic bottom of the labor-

[5] With some rectification for altered (=reduced, in this case) rentier consumption, building on Junk's comment we can derive a precise method for locating S_2. For the case considered it would be necessary to complete the diagram by drawing in the implicit lower segment of S_1, below the perfectly elastic floor at w_0. I do not think this extension necessary for the analysis here, and thus have not encumbered the diagram with it.

It might be noted that with constant marginal products the labor supply curve would become a backward L, and unresponsive to shifts in labor demand.

supply curve of (my) Figure 1 as reflecting either a "money illusion" or a surreptitious introduction of an exogenous wage under the guise of market determination, he is at liberty to do so. However, I think that other interpretations are equally plausible. For example, workers may be entirely cognizant of real-wage phenomena and yet, if the law compels them to accept a nominal minimum wage or if union loyalty leads them to observe the announced money-wage standard, then there is no "money illusion" with which to charge them as individuals, though there is illusion in the "system." Likewise, in the argument above it is the tightening of the labor market through demand and supply changes which is regarded as causal in lifting the money-wage floor, though the analysis is unable to account for the exact magnitude of the elevation.

I have confined myself to the case isolated by Junk. However, as drawing the relevant figures would show, his results do not necessarily obtain if the labor supply curve is ʃ-shaped; all would depend on the point of original intersection of labor demand and supply. Further, his argument only applies to the case of given equipment and productivity; while I agree that this is the basic original case that requires exploration, with rising investment and improved productivity, in company with constant labor-supply attitudes, the restrictive results pictured by him need not follow.

SIDNEY WEINTRAUB*

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Interest Rates and Fixed Investment: A Correction

We are indebted to Arthur Goldberger of Stanford University for pointing out two errors in our paper "Interest Rates and Manufacturers' Fixed Investment," in the March 1957 issue of this *Review*.

1. In equation (5), page 88, the price coefficient should have a *positive* sign. It is obtained from the ratio of the wage coefficients in (3) and (4), without change in sign. Correspondingly, the price elasticity of demand for investment goods comes out with a "wrong" positive sign. From the confidence intervals of the wage coefficients, one can infer that the price coefficient is not significantly different from zero at the 5 per cent level.

2. On page 82, the last sentence of the first full paragraph should be corrected to state that the hypothesis of no serial correlation barely misses acceptance at the 5 per cent level.

FRANZ GEHRELS
SUZANNE WIGGINS

BOOK REVIEWS

General Economics; Methodology

Economy and Society—A Study in the Integration of Economic and Social Theory. By TALCOTT PARSONS and NEIL J. SMELSER. (Glencoe, Illinois: Free Press. 1957. Pp. xxi, 322. $6.00.)

As the authors state in their preface, the first three chapters of this book ". . . follow, in a broad way, the outline of the subject-matter of the three Marshall Lectures" which Professor Parsons delivered at Cambridge in the fall of 1953. At that time, so the story continues,

> . . . the junior author was in the last year of a Rhodes Scholarship in Philosophy, Politics, and Economics at Oxford, with emphasis on economics; he had previously been a student of sociology at Harvard. We established contact immediately and carried on a series of discussions in Europe during the academic year 1953-54. When both of us returned to Harvard for the year 1954-55, these discussions ripened into the collaboration of which this book is the product.

The conclusions they reached, as summarized in a brief concluding chapter, are such as would be accepted as a matter of course by virtually all economists: (1) that economic theory is a special case of social theory in general; (2) that the economy is a special type of social system; (3) that a two-way exchange goes on continuously between the economy and the rest of society; (4) that such interchange is not "randomly distributed," but is "concentrated *vis-à-vis* other specific cognate societal sub-systems"; (5) that concrete economic processes are always conditioned by factors which are operative in those other subsystems; (6) that the operation of such factors can be analyzed only by use of a theoretical scheme other than economic theory; (7) that "the problem of institutional change in an economy is a particularly striking special case of Proposition 6 because the primary factors involved cannot be economic"; and (8) that "economic theory need not remain an 'island' of theoretical specificity totally alone in an uncharted 'sea' of theoretical indeterminacy." However, the procedure by which the authors arrive at these conclusions is likely to strike many economists as somewhat less intelligible than the conclusions reached.

The principal analytical device is a "paradigm" that has been adapted from *Working Papers in the Theory of Action*, by Parsons, Bales, and Shils. In this paradigm "the functional imperatives of a system of action" are represented by a parallelogram that is subdivided into four parallelograms which contain the following notations: A: Adaptive Instrumental Object Manipulation; G: Instrumental-Expressive Consummatory Performance and Gratification; L: Latent-Receptive Meaning Integration and Energy Regulation Tension build-up and drain-off; and I: Integrative Expressive Sign

Manipulation. This paradigm is then adapted to the representation of the "Functional Differentiation of the Economy as a System," with "Capitalization and Investment Sub-system" in the A compartment, "Production Sub-system—including Distribution and Sales" in the G compartment, "Economic Commitments: Physical, Cultural and Motivational Resources" in the L compartment, and "Organizational Sub-system: Entrepreneurial Function" in the I compartment. Various "sub-systems," and the relations among them, are then schematized in diagrams of increasing complexity, involving all sorts of combinations of code letters.

This exercise occupies the three long chapters (184 pages) which follow the outline of the Marshall Lectures. Two more long chapters follow in which the authors show how the trade-cycle models of Samuelson, Kalecki, and Hicks (plus the consumption theories of Keynes and Duesenberry), and the Domar model of economic growth (plus the separation of ownership and control as treated by Berle and Means), can all be translated into the language of their paradigms, and that so translated it all leads inexorably to the conclusions of the final chapter.

It would be regrettable if this were all a reviewer could report about *Economy and Society*. But it is decidedly not all. In the past half-century or so the other social sciences have learned a great deal about cultural processes and the "internalization" of those processes in the roles and personalities of individuals, and this knowledge renders invalid and obsolete "the psychological and sociological atomism . . . set forth perhaps most conspicuously by Robbins . . . but in more moderate form permeat[ing] the work of such authors as Pareto, Hicks, and certain welfare economists." As the quotation marks should indicate, Parsons and Smelser are well aware of this, and hence their book is enriched on nearly every page by acute comments on the arbitrariness and artificiality of much present-day economic analysis. Space permits the citation of only one example, but it is representative of many.

> To argue that the pressure to better satisfy wants is the prime mover of economic development is to argue in a circle, since wants themselves are a part of the changing entity in question.

The short essay on the present posture of Western society, especially as regards the supposed antithesis of "capitalism" and "socialism," with which (except for the short summary chapter) the book closes, is especially fine. For these reasons at least the book deserves to be read by every serious student.

Nevertheless the schematization is regrettable, for two reasons. First, such paradigms, like mathematical models, inevitably strip down and stereotype social and economic reality; and then, having done so, they produce a spurious impression of intellectual rigor. Thus, for example, the reader who learns from the table of contents that a discussion of "The adaptive significance of the A_{A_g}—A_{G_a} and A_{A_g}—A_{L_g} boundaries for the economy" begins on page 213 will realize that considerable study will be required before he will be competent to run a drift fence along these boundaries. But the question still remains whether there are any such "boundaries," and even whether the

word *boundary* is appropriate to a discussion of the relation of economic to otherwise designated activities.

C. E. AYRES

University of Texas

Economic Policy: Principles and Design. By J. TINBERGEN. (Amsterdam: North-Holland Publishing Co. 1956. Pp. xxviii, 276. $7.00.)

Years before the operations researchers had gotten around to the application of mathematical models to military and business problems Professor Tinbergen was employing similar methods in the investigation of governmental economic policy. Now we have presented to us what is in effect the master's manual on model-building for policy analysis.

Tinbergen classifies the measures available to the policy maker into three categories: reform or changes in foundations, quantitative policy-measures involving changes in the numerical values of instrument variables like interest rates and taxes, and qualitative policy measures which consist in a change in the instruments employed. It is not surprising that the bulk of the book is devoted to the examination of quantitative policy problems both because of the greater amount of interest which has centered on these problems in western economics and because these problems are more amenable to analysis by the most commonly employed mathematical techniques.

Tinbergen's approach consists essentially in the listing of specific problems and the construction of appropriate mathematical models for each problem. In all, the author constructs 21 models, some containing as many as 20 equations. (This should not frighten the nonmathematical reader—there is almost no mathematical manipulation, and what there is, is elementary.) Each problem is described by a listing of the policy maker's targets and the instruments available to him. For example, in one problem the targets are listed as " 'full' employment, balance of payments equilibrium and monetary equilibrium" and the instruments as "government expenditure, the wage rate, and the exchange rate." This does not mean that Tinbergen believes these to be the only or even the most effective instruments for the attainment of the targets. In fact, a number of the problems discussed by Tinbergen differ primarily in the instruments considered as means for the achievement of a set of common goals. Sometimes the author evaluates these instruments with the aid of illustrative numerical parameters (which doubtless reflect Tinbergen's rich experience in empirical investigation) that are inserted in the equations. These are then used to calculate the values of the instrument variables required to achieve the specified targets.

Tinbergen treats a wide range of important problems. Wage policy, monetary policy, employment, monopoly, trade balances and even specific schemes like 100 per cent money and commodity reserve currency make their appearance. (Incidental quibble: Tinbergen misinterprets 100 per cent money as "a 100% gold cover" rather than bank reserves which constitute 100 per cent of deposits.)

The mathematical models produce a number of familiar conclusions. Lower wages will often not add much to employment and can even sometimes reduce

it. The balanced budget multiplier may or may not be equal to unity. Monetary policy can sometimes be a weak policy instrument, etc. But closer examination suggests that some of these results are deduced in ways which are unfamiliar and somewhat surprising. For example, it is usually maintained that any depressing influence of a fall in wages is likely to arise through its effect on expectations. If a cut in wages leads to a disproportionately greater fall in anticipated future wages and prices (elastic expectations) it will induce sellers to try to hasten inventory depletion and buyers to postpone purchases, both effects serving to produce or aggravate a glut on the market. But in Tinbergen's model there is nothing said about expectations. Instead he states that the possibility of a depressing effect of low wages arises in his model out of a difference between wage earners' and nonwage earners' propensity to consume—lower wages redistributing income to a nonwage earner whose propensity to save is relatively high (p. 67).

However, closer examination of the model suggests that the relation between the wage level and employment is derived in an even more unusual manner. For example, the depressing effect of high wages on employment is deduced from an equation [equation (3506), p. 65 or equation (3) p. 232], an oversimplified version of which is $PY = CEW + K$ where P is the price level, Y is real national income, E is employment, W the level of wages, and C and K are constants. This equation states essentially that the *money value* of national income is dependent linearly on the propensity to consume of wage earners (for simplicity I have dropped, or rather, hidden the term corresponding to nonwage-earners' expenditure which appears in the original). Now its peculiar feature is the presence of the constant K, whose value is unaffected by wage and price changes. In an economic setup satisfying this relationship a wage-price spiral is likely to occur only at the expense of real income and employment because the equation says that the money value of income minus total labor earnings is a constant. If W and P rise proportionately during a period of full employment there must be an offsetting fall in Y (and hence presumably in E). I find this quite difficult to visualize. Surely a more plausible relationship would result from substitution of PK for the constant term so that inflation at a high level of income and full employment becomes possible.

I have gone over this at some length only to emphasize how tricky the construction of a mathematical model can be. The insertion of an apparently innocuous constant can turn out to be crucial. Even in the hands of so skillful a master as Tinbergen a model can sometimes lead to acceptable conclusions for what appear to be the wrong reasons. And that in turn affects the confidence which we should be prepared to display in other conclusions drawn from the same model.

But this is meant as a note of caution not as a serious criticism of a very admirable volume which can be instructive alike to the theorist who hopes to contribute to policy making and to the policy maker who hopes to employ the theorist's services.

William J. Baumol

Princeton University

International Economic Papers, No. 6. Edited by ALAN T. PEACOCK, RALPH TURVEY, WOLFGANG STOLPER and ELIZABETH HENDERSON. (New York: Macmillan. 1956. Pp. 211. $3.50.)

This series has made a valuable contribution to economics by calling to the attention of English-speaking economists the names and contributions of many of the best European writers. It also has served the purpose of suggesting through notes and other references the contributions of other important Europeans.

This volume is of particular interest as it contains an outstanding contribution by the late Professor Schumpeter. A reading of this article, written in 1917 or before, leads one to think that a large part of the controversy over monetary policy should have been settled when this discussion of "Money and the Social Product" was published. This article, the longest and the most exciting of the collection, proves again that many of the controversies of economists are the result of either inadequate attention to the literature of the times or the result of a perverse, if not distorted, bias. The beauty with which Schumpeter disposes of most of the aberrations of the period and keeps focus on the basic question of the value of money commands great respect. His disposal of the commercial loan theory of credit extension is admirable in its clarity and forcefulness. One must conclude that even in the field of income analysis his insight was far advanced, and little has been added of a positive sort since this famous article was written. Indeed the retrogression of the late 'thirties and early 'forties suggests that we have only just recovered from the weaknesses caused by an overemphasis upon income rather than monetary analysis.

Other articles in this collection include an interesting essay by Paul Lambert on "The Law of Markets Prior to J.-B. Say and the Say-Malthus Debate." The author indicates that even some of the language used by Say can be found in the works of Le Trosne and an anonymous author of "Sketch of the Advance and Decline of Nations" published in 1795. He further indicates that in the Say-Malthus debate Malthus clearly won his battle but that the ideological overtones of the period prevented the public recognition he deserved. Guy Arvidsson's article "On the Reasons for a Rate of Interest" focuses on Böhm-Bawerk's three main reasons for the existence of interest in a stationary society. Covering the debate between Böhm-Bawerk and writers such as Fisher, Wicksell, Lindahl and others, he proves that each of the three conditions of Böhm-Bawerk is sufficient to give rise to a positive rate of interest, contrary to the contention of many of these opponents. Mauro Fasiani's article of 1930 "On a Particular Aspect of Consumption Taxes" anticipates the recent controversy in this country over the relative effects of consumption taxes and income taxes. Using indifference analysis he finds that consumption taxes generally impose a more severe burden than an equivalent income tax. "A New Theory of International Trade" by August Lösch is a sharp criticism of classical trade theory in terms of modern location theory. His stress on gradual adjustment and the similarity of international and domestic trade are a welcome corrective to some of the more traditional presentations of international trade theory.

Two articles on planning follow. One is by V. V. Novozhilov "On Choosing Between Investment Projects" in the planned economy of modern Russia. The other is a German contribution by Herbert Zassenhaus "On the Theory of Economic Planning." Both are of considerable interest but the stress of the Russian author on scarce materials is indicative of the efforts which they are making to achieve the best utilization of limited plant, materials and other skills. Zassenhaus' stress on the political factor is welcome but the possibility of finding adequate means of measurement of this influence, even in a static economy, seems to defy rational calculation.

"Developments in the Danish Money and Capital Markets 1948-1953," by Heinrich Schlebaum Larsen, is an attempt to verify Keynesian interest theory by reference to the percentage distribution of assets rather than the total supply of money and credit. He finds that the data suggest a comparable curve to that of liquidity preference.

He concludes that if it is true "that the public invests its assets in approximately fixed proportions, but varying with the level of the rate of interest, then it must also be true that developments in the public's time deposits and purchase of bonds are primarily determined by developments in the quantity of money and cannot be taken as an expression of changes in the magnitude of savings." The article by Gustav Cassel on "The Principles of Railway Rates for Passengers" is a thorough exposition of the problem of differential rate-making and a sharp criticism of full-cost pricing. His advice is made pertinent for the guidance of rate-making officials but is abstracted from the political forces that are so often the cause of the most violent departures from economic principles.

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Principles and Problems of Modern Economics. By WILLIAM A. KOIVISTO. (New York: John Wiley. 1957. Pp. xxi, 834. $6.00.)

In his introduction the author says that he wants to train students "to think in a systematic fashion about economic problems and that the problems fall under . . . three major headings . . . economic instability, economic efficiency, and economic inequality." . . . "Theory is developed in terms of and illustrated by means of [these] three problems."

This approach leads him to divide his book into four major parts of about equal length and a concluding chapter. The "background and orientation" section has useful chapters on the history of economic thought (focused on the three problems) and on simple models of the market process, the price system, and the circular flow of national income. The author also makes the usual vain attempt to justify theories and theorizing before the student knows, or cares, what it is all about.

In line with the prevailing mode of economic thought, the problem treated first and longest is that of economic instability. After a historical review of business fluctuations, there is a Keynesian analysis of fluctuations in national income with a good set of diagrams. Implications for fiscal policy are explored, perhaps too briefly, before turning to a more extended discussion of the

banking system and monetary policy. Here the author's Chicago background reveals itself in the first of several major references to the ideas of Henry Simons, this time to the 100 per cent reserves approach to greater stability. Changes in liquidity preference are given a key role, though interest rates are also shown to be influenced by the open market activities of central banks. Koivisto gives less weight to rediscount rate changes which seem to have been the major method of credit control in 1955-56. The concluding chapters of Part II deal first with the instability problems of foreign trade and capital movements and then with the long-run problems of stagnation and progress.

The economic efficiency section of the book does not have as good an introduction as that on instability. It starts right off with models of the rational consumer deciding which good and how much to buy. There are indifference curves, price-offer curves, contract curves, and similar analytical tools in profusion. Next follow the usual models of the firm under pure competition and several variants of the monopoly theme. To point up the problems of "wasteful" monopolistic pricing and output practices, a brief history of antitrust action is given together with some recent court decisions. Simons' antimonopoly credo and program are given two pages, with further reference later to his somewhat paradoxical preference for government ownership rather than public regulation. However, the author does not urge any particular solution as following logically from the application of the economic principles he expounds. He summarizes his optimal efficiency analysis in a final chapter after an institutional appraisal of consumer buying inefficiencies and another look at foreign trade. Reading between the lines some may get the idea that economic efficiency in a democracy is too complex a problem for his models to handle with their preferred $MC = AR$ solutions.

Part IV on inequality begins abruptly with a chapter on the internal equilibrium of the firm followed by others on wages, interest, and profits with frequent use of 3-dimensional models. Rent is not given separate consideration, but is treated as a loosely defined "surplus" element in all factor incomes. Partial ambiguity here stems from the common failure to distinguish clearly between four different kinds of surpluses: those obtained by subtracting from the realized factor price (1) the factor owner's reservation price, (2) the factor's opportunity cost, however figured, (3) its past cost of production, or (4) its reproduction cost. The final chapter of Part IV on the personal distribution of income is very good. Some will prefer to use it as an introduction to inequality problems, rather than as a conclusion.

Part V contains a brief summary and review using the inconsistencies of our various agricultural policies to illustrate forcefully the unavoidable conflicts among economic objectives.

Although the pattern of the book is very clear, sometimes its terms are not. "Inflation," for instance, is used in many different ways: usually as a vague opposite of "depression," but also as the opposite of deflation, as rising output, as the state of business when above the GNP trend-line, as rising prices, as rapidly rising prices, etc. The author's failure to distinguish between different kinds of competition leads to the absurdity: "Advertising, often taken

by the uninitiated as a sign of competition is the reverse. Its appearance is always a sign of the disappearance of competition" (p. 474). For want of appropriate adjectives "profits" also becomes a term with several conflicting definitions. We are told (pp. 477-79) that "profits are zero" under the full-equilibrium conditions of both pure competition and monopolistic competition, but the reviewer could find no suggestion that normal profits might be included as a cost in the *AC* curve at the preferred tangency point with *AR*.

Semantic shortcomings, however, are not enough to condemn a text, as the wide sale of Samuelson indicates. Koivisto may not have quite the same light touch, but he presents many interesting and relevant stories. His text goes further than most in its analysis of price and firm equilibrium models and has more clearly defined central themes. Instructors fresh from graduate school and others wanting something more thorough than their present texts should take a good look at this one.

ROBERT B. PETTENGILL

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Price and Allocation Theory; Income and Employment Theory; Related Empirical Studies; History of Economic Thought

The Accumulation of Capital. By JOAN ROBINSON. (Homewood, Ill.: Richard D. Irwin. 1956. Pp. xvi, 440. $6.00.)

"She seems to have written her article the way an oyster makes pearls—out of sheer irritation," was a comment[1] elicited by a recent article of Mrs. Robinson's[2] on the same subject as the book. To this reviewer the book seems to reverse the process and to constitute a pearl whose most conspicuous product is irritation. Of the two main sources of the irritation, the most prolific, though the less important, is the proclivity to produce aphorisms, wisecracks, "contradictions," "paradoxes" and "anomalies" which look rather Marxist, and whose power to irritate is only magnified by adjacent indications that Mrs. Robinson really knows better. The more important source of irritation is the method employed of using abstractions which seem so far beyond the call of necessity and performing on these models with such virtuosity that the attention not only of the reader, but of the author too, is frequently shifted from the original economic issues to the immediate exercises, so that peculiarities that arise only from the kind of model used come to be considered as practical problems in economics.

In spite of these faults, or perhaps in part just because of them, the volume is not only a work by a distinguished economist on a most important subject, but it is an important book. It brings into focus and develops the kind of thinking on the subject of economic development that is going on in Oxford and Cambridge, and though this line of thought does not seem to the present reviewer to be too helpful, working through the book would be excellent

[1] R. M. Solow, "The Production Function and the Theory of Capital," *Rev. Econ. Stud.*, 1955-56, XXIII (2), 101.

[2] Same title and same journal, 1953-54, XXI (2), 81.

experience for such graduate students as are not terrified by the extreme abstractions of the models and are not too intimidated by the intricacy of the arguments. The book is full, too, of intriguing and stimulating comments on all sorts of subjects peripherally related to the problems of the accumulation of capital. And behind my strictures on the method harps the disturbing memory of my feeling somewhat similarly supercilious about queer things going on in Cambridge some twenty-two years ago before Mrs. Robinson and her friends so patiently educated me on the incipient Keynesian revolution.

The book is in the first place an attempt to direct the attention of the economist from the theory of value (which she satirizes elsewhere as being concerned with "Why does an egg cost more than a cup of tea?"[3]) to the causes of the wealth of nations. These causes are limited to the accumulation of capital and the growth of technical knowledge and of population. The contribution of the market mechanism in enabling the economy to produce efficiently the things that buyers prefer (the understanding of which would seem to be a more appropriate account of the function of the theory of value) is either taken for granted or shrugged off as negated by the power of advertising to influence preferences. Growth of population having escaped from the economic discipline and growth of technical knowledge never having been captured, the concentration is naturally on the accumulation of capital. Accumulation is, moreover, considered as it would develop in a society which was purely capitalist, by which is meant that there is no responsibility by the government for maintaining a satisfactory level of employment (although there are occasional lapses when it is recognized that modern capitalist societies do recognize this responsibility and can carry it out with some success). We thus get the combination of a keen recognition of the Keynesian flaws of a market economy and an outlawing of the remedies, a convenient stage for disobliging remarks about capitalism.

Reading this book does not alter one's previous feeling that there is not really very much that economics can tell us about the accumulation of capital. Accumulation, which is equal to (a) saving as well as to (b) investment, can take place only to the degree that (a) consumption leaves resources to be available for accumulation and (b) entrepreneurs undertake investment activity. The former by itself would lead only to stagnation, while the latter by itself would lead only to inflation. Stagnation may therefore be due either to lack of saving (because of poverty or because of profligacy) or to lack of investment (because of lack of enterprise or because of lack of opportunity for worth-while investment).

Where population is increasing, the level of income (per capita) can be maintained only if there is a rate of accumulation sufficient not only to provide the increasing number of workers with the prevailing level of productive equipment per head, but with some more on top of that to make up for the declining availability of natural resources per head. Only if the rate of accumulation is greater than that needed for these two purposes can there be any increase in income per head, and the greater the rate of growth of population

[3] Joan Robinson, *On Re-reading Marx* (Cambridge, 1953), p. 22.

the greater is the rate of accumulation needed to maintain any given increase in income per head.

With a given state of technical knowledge one would expect to find diminishing returns to accumulation in the sense that given increments in the rate at which current consumption is sacrificed to the accumulation of productive equipment (including skills) would yield diminishing increments in future output. This would, however, probably be overlaid by the continuing improvement of technical knowledge and possibly important economies of scale from the fuller utilization of indivisibilities as the size of the market is increased. Furthermore, every one of the factors is liable to have significant reactions on each of the others. Technical progress is liable to change the relative productivities and the rewards of the different factors of production and the rents of all the different kinds of natural and not so natural resources, including the rate of return on accumulation. It will also change the relative prices of different products and thereby the allocation of expenditure between them. Accumulation will affect the costs of different products differently. Increases in the level of consumption will affect the relative demand for different products, with repercussions on the rewards to different factors including the return on accumulation. Similar effects would follow from population changes, from changes in the degree of monopoly and from changes in tastes, in preferences about efforts or saving or in enterprise. On top of all this there are the possible effects of all these items on the nature of the technical progress when it is directed to finding ways of economizing in factors (or products) that become expensive. The prospects of figuring out the ultimate results of all these intricate interreactions between the thousands, or rather millions, of different elements are extremely dim, and the theory of value is not likely even to be able to tell whether a cup of tea will continue to cost less than an egg. Its function, however, is to indicate the *manner* of these interreactions with possible morals for policy rather than for prophecy.

Economic policy, since it is directed at achieving more efficient use of resources, does not make much sense if the economized resources are not really scarce and would only be lost in the larger hole of severe depression.[4] The first condition of any economic study that would hope to arrive at useful results would be to suppose that the government is carrying out a policy of maintaining a reasonable degree of employment. One could then examine the ways in which investment is adjusted to thrift, or saving adjusted to enterprise, and the effects of the resulting accumulation, not indeed on the degree of inflation or stagnation that might come about, for these would be prevented by the more general rules of policy, but on the degree of economic progress. One could then go on perhaps to consider the methods of discouraging consumption so as to increase accumulation or vice versa. The existing corpus of economic understanding, or at least that of a few years ago, would seem to indicate that there is sufficient adaptability in the system, by the use

[4] Lerner, *Economics of Employment* (New York, 1951), Ch. 9, "The Upside-Down Economy or Topsy-Turvy Economics," pp. 141-50.

of the price mechanism, and in particular the rate of interest, as well as by the use of fiscal policy, to maintain full employment (or at least reasonable employment) over a large range of division of the product between consumption and accumulation. The one outstanding question, which is touched on only incidentally in the book, is whether a full-employment policy, when it is accompanied by strong pressure for increased money wages, may not necessitate a "Wage Authority" to come to the rescue of monetary and fiscal policy much as fiscal policy has to come to the rescue of monetary policy in certain situations (or vice versa). But this is another story.

Mrs. Robinson's strategy in the book is quite different. She bypasses marginal analysis altogether, beginning with the assumption that there is only one technique available with fixed coefficients between labor and equipment. There is then no marginal productivity in the picture and the division of the product is open to determination by other forces. As the book is developed this abstraction is relieved. Technical progress is brought in, neutral and biased as between labor and capital, then a "spectrum of techniques" with different levels of mechanization, with these neutral and biased between the use of labor and of land as well as a host of other complications. But the adjustments to reality are incomplete and irregular so that the unusual results that follow from the initial simplification are not completely removed. It is true that at the end of the book the reader is invited (p. 386) to draw his conclusions for himself, and that at the end of Book IV which brings in "finance" he is warned that "We must be content with the conclusion that, over the long run, the rate of accumulation is likely to be whatever it is likely to be" (p. 244), but at the end of the section that deals with "Accumulation with a Constant Technique" he is told that "many of our conclusions will have to be modified as the assumptions of one technique and no rentier consumption are relaxed, but we shall find that the argument holds good in all essential respects, and provides a picture of the basic characteristics of accumulation under the capitalist rules of the game." This prophesy is indeed fulfilled, but the reason for this, apart from the exclusion of employment policy from the definition of the capitalist rules of the game, lies in the incomplete emancipation of the models from the initial assumption of fixed coefficients.

The essential argument is that with fixed coefficients any additional workers require the same tools per head as the others. They can therefore be absorbed only if accumulation is just sufficient to provide these tools. If this comes about we can have a smooth continuing development which Mrs. Robinson mischievously calls a "Golden Age." (There is another kind of Golden Age if neutral progress in technique plays the part of increased population. There is then also an increase in the level of consumption per head.) A slightly greater rate of accumulation would make tools a free good, the worker would get the whole product, and the capitalist would get euthanasia. Conversely a rate of accumulation slightly less than that required for a Golden Age would reduce the real wage to zero (or to subsistence level when the redundant labor had disappeared). These extreme corollaries are not drawn by Mrs.

Robinson—perhaps because of the inability of workers to negotiate real wages. And a way out is found in a gradual fall in the real wage (when labor is the redundant factor) which increases profits, and thus saving out of profits, so as to permit the additional accumulation to provide the needed tools. Uneasiness at the arbitrariness with which the real wage is reduced (for there is no good reason why prices should fall less than wages) is relieved in true Marxian fashion by pointing out that this only goes to show how silly a system the capitalist system is to have to depend on Golden Ages, while implying that the historical viability of capitalism must nevertheless indicate that this reaction (and the reverse when equipment is the redundant factor) is in fact operative. Nor does it turn out to be difficult to find a rationalization: The investor seeks to maintain the *money* volume of investment, so that real investment increases when money wages and prices fall and thus real wages—the residual—must fall. (This does not prevent the opposite *deus ex machina* from being invoked later in the book when a fall in money wages leads to the *rise* in real wages which turns up the bottoms of trade cycles; but in that area such license is traditional.) It is the changing distribution of income between workers and capitalists that adjusts the saving to the investment needed for a Golden Age and completely takes the place of the traditional adjustment of capital intensity to the rate of interest that is pooh-poohed, but not entirely thrown out, by other performers on the capital-output ratio like Kaldor and Harrod.

This argument survives the relaxation of the assumption of constant technique because the relaxation is only partial. It takes the form of a series of discrete techniques on a spectrum or scale of increasing mechanization on the lines made familiar by the substitution of discrete processes and linear combinations of these for production functions in "linear programming." This device permits one to imagine a movement along the straight line joining two points representing two "processes" (here techniques), the line representing combinations of the two processes in different proportions. A movement along such a line would represent the continual displacement of one of the techniques by the other, namely by the technique represented by the point toward which the movement is imagined, reaching this point when the displacement is completed. While the displacement is going on both techniques are (almost exactly) equally profitable, the displacement keeping constant the relative prices of the factors (here the wage rate and the profit rate). When the displacement is completed we are back with only one technique in operation and accumulation bids wages up and profits down until a still more mechanized technique becomes worth while and we go off along another connecting line.

Mrs. Robinson makes use of this device to stress the difference between *accumulation* and *mechanization*—between the *supply* of equipment by saving (and investing), which has the effect of bidding up wages and bidding down profits, and the *demand* for more equipment for more mechanized techniques, which *moderates* the effects of accumulation (the supply of equipment) on wage and profit rates (p. 151).

The usual way of expressing this is to say that any given amount of ac-

cumulation will have a smaller effect in raising the marginal product of labor (and the wage rate) and in lowering the profit rate, the greater are the *opportunities* for mechanization—or in other words the greater is the elasticity of substitution of equipment for labor. But Mrs. Robinson will have nothing of marginal productivities and goes on to some true hairsplitting in denying (though not too consistently) that the accumulation of capital increases the real wage by increasing the marginal product of labor, and she insists that the increase in the real wage (which is brought about by the increase in accumulation) is the *cause* and not the effect of the increase in mechanization. This is hairsplitting because with a given population there can be no mechanization without accumulation, and vice versa, and it leads to error because Mrs. Robinson seems to suppose that at the critical points, where the process by which one technique displaces another has been completed and the process of its displacement by a third is about to begin, accumulation is going on without mechanization. But no accumulation can take place at such points. All that can happen at such points is the increase in the *valuation* of the existing equipment (and other stocks) as wages (and costs) are bid up and the rate of profit (and the rate of discount) is bid down. Mrs. Robinson's device is an excellent way of illustrating the difference between genuine accumulation of capital which takes place as more mechanized techniques replace less mechanized techniques at the margin of equal profitability, and mere revaluations which are restricted to the critical points. This gets her involved in a host of mare's-nests about the difficulties and impossibilities of measuring capital instead of concentrating on investment or accumulation as the only way in which so-called capital problems come in contact with genuine economic decisions. In throwing out the marginal productivity mechanism she is forced (if that is the right word) to a kind of residual theory which says that the real wage is determined by how much is left over to be divided among the workers as they take their turn in the queue after the requirements for accumulation and any consumption by capitalists, and we are back at a strict wage fund which comes back to life in several different contexts but always in response to minor variations of the same spell.

I have considered only one, though perhaps the most important, of a series of questionable procedures, and perhaps I should have said more about some of the more positive elements which are many and important. Among these are her development of the inflation barrier concept that is of great help in understanding various kinds of inflations (and to which could profitably be added a more thorough examination of cost inflation), an illuminating account of the operation of buyers and sellers markets (that could be put to better use than to add yet another, if more than usually skilful, business-cycle description masquerading as analysis with its excess degrees of freedom showing) and the clarification of the concept of "finance" as the ability of entrepreneurs to pursuade the controllers of funds that they are worthy of credit (though this is in several places confused with the supply of liquidity to the economy as a whole). It seems to me, however, that the most useful

parts of the book are the errors and the ingenious confusions the search for which can give such first-class exercise in economics to graduate students (and to professors) who could do with a tough workout and who can stand the tough cuteness of Mrs. Robinson's style.

ABBA P. LERNER

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Location and Space-Economy. By WALTER ISARD. (Cambridge: Technology Press. New York: John Wiley. London: Chapman and Hall. 1956. Pp. xix, 350. $8.75.)

In recent years the literature of location theory and spatial economics has benefited from a number of significant contributions; Professor Isard's book must certainly be counted as outstanding among these. The book couples a rich scholarship with originality of thought and recognition of unsolved problems. Surely one can ask little more of an author.

An index of the scholarship of the book may be gained from considering either the book's review of existing literature or the thoroughness of the coverage of the field of spatial economics that the book exhibits. Under the former category notice is taken of the pioneering work of Thünen and Luanhardt, and considerable attention is given to the work of Weber. Probably less known to American readers are the attempts of Predöhl to integrate spatial economics and general equilibrium theory and Weigmann's application of Gestalt analysis to location and spatial problems. The writing of Lösch on market areas receives an extensive evaluation. In addition to a review of the important German literature, the volume includes discussion of the writings of Ohlin, Palander, Hoover and other writers more familar to American readers.

Viewing the book from the standpoint of coverage of the field of spatial economics, one is also brought to a recognition of the completeness and soundness of the author's work. The volume begins with a statement of regional and locational problems in nontechnical language. The author then moves to a consideration of some general theories of location. In this section he brings out with clarity the point that spatial considerations alter existing economic theory; that, for example, dollars spent for transportation assume a special importance in consumer and entrepreneurial decisions in a manner not contemplated in dimensionless value theory. Or, relying on a loose analogy, transportation expenditures deserve special emphasis in value theory just as investment expenditures deserve special consideration in the study of economic fluctuations.

Perhaps the most striking segment of the book is the chapter on empirical regularities of space-economy. The work of Zipf with the rank-size rule, and the work of Steward with social physics and population distributions receive special attention. While Isard is skeptical of the validity of the various empirical studies, he does not totally reject them. In a more traditional manner the author continues with chapters on the locational equilibrium of the firm

in the case of transport orientation and the case of labor orientation. A chapter on market and supply areas rounds out this more orthodox theoretical section of the book.

Throughout the book, the author contends that many of the seemingly diverse topics in location economics can be related to each other in a logical fashion, and that there is an underlying unity in spatial economics not sufficiently stressed by previous writers. He makes this point clearly in his discussion of the relation between industrial location and agricultural location. In this discussion he shows that basically the same theory, appropriately modified, handles both cases. The parallel between the development of distribution theory and of spatial economics may be observed by recalling that at one time the compensation of different factors of production had to be explained by elaborately and fundamentally different theories. The development of generalized marginal productivity theory showed the underlying unity in distribution theory. Similarly the work of Isard, Greenhut and other modern writers appears to be performing a comparable service for spatial economics.

Another thread of underlying unity in economic theory is developed by the author in his chapter on the relations of location theory and international trade theory. He shows that the transport-orientation theory from location economics and the opportunity cost theory of international trade can be united. The demonstration is carried through by means of an example. One might wish for a more general and more comprehensive demonstration. Several interesting implications of the fusion of location and trade theory are mentioned or hinted at but not developed fully.

The most significant and original contribution that the book makes is the mathematical formulation of location theory. Again the underlying unity appears as similarities between different aspects of location theory and similarities between location theory and other branches of economic theory are developed. The author shows that Weber's problem of transport-orientation, problems of market and supply areas, and the problem of agricultural location all depend essentially on a condition of equality between ratios of transportation rates and marginal rates of substitution of transportation inputs. In other words, the locational equilibria depend on a condition analogous to the equilibrium condition of a consumer's indifference map. Since all of the problems involved are maximization problems, the similarity of the results can hardly be regarded as surprising. Nevertheless they are instructive in pointing out the precise nature of conditions that one vaguely knows to be true.

The book contains little that the reviewer would wish to criticize. The level of exposition is uneven; at points the obvious is elaborated and at other points difficult arguments are insufficiently explained. Judgments are sometimes passed on writers that would not be accepted by all persons familiar with the literature. Probably a more economical organization could have been obtained by developing the general location theory early in the book and showing briefly that previous theories are special cases.

Isard has produced a distinguished book in spatial economics. He has

promised a second book dealing with the larger, regional aspects of spatial economics. After reading the present book, economists will hold great expectations for the promised book.

RALPH W. PFOUTS

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Studies in the Labour Theory of Value. By RONALD L. MEEK. (New York: International Publishers. 1956. Pp. 310. $5.00.)

Most western economists today would share the observation once made by Schumpeter to the effect that the labor theory of value had its burial a long time ago. It is all the more ambitious, therefore, for anyone to try to resuscitate it in language comprehensible to contemporary students of economics. Mr. Meek sets out to do this, and, in the opinion of this reviewer, manages to reach but the half-way mark. That he did not succeed in making a dent on Joan Robinson, likely a most sympathetic listener, is apparent from perusal of her booklet *On Re-reading Marx* (1953) which bears evidence of having grown out of her discussions on the subject with Meek.

The book is divided into four parts: (a) the doctrinal development of the labor theory of value before Marx, in particular in the hands of Adam Smith and Ricardo; (b) Marx's treatment of the subject; followed by (c) one chapter taking up, and attempting to answer, the arguments by Marx's critics such as Pareto, Bernstein, Croce, Joan Robinson, etc.; and (d) the last chapter on "the reapplication of the Marxian labour theory." The basic theme which runs throughout the book and illumines different phases of arguments appears to be, in Meek's own words, the following:

> What Marx was above all concerned to show in his discussion of the value problem was that *relations of exchange were ultimately determined by relations of production*—using the latter expression here to include not only the basic relation between men as producers of commodities which persists throughout the whole period of commodity production, but also the specific set of relations of subordination or co-operation within which commodity production is carried on at each particular stage of its development. . . . In this context, . . . it was quite sufficient for Marx to show (a) that under 'simple' commodity production ratios of supply prices were *directly* determined by embodied labour ratios, and (b) that under capitalist commodity production ratios of supply prices were *indirectly* determined by embodied labour ratios. (Pp. 287-88. Italics in the original.)

Meek's presentation of the doctrinal evolution of classical economics, which prepared the ground for Marx, is excellent and recommends itself as independent text-book material in its own right. But I am less certain as to how far Meek has succeeded in maintaining the same degree of persuasiveness in the subsequent chapters. A lapse occurs right at the stage where he makes the transition from the classical economists to Marx. In the transition, I feel, it is essential to highlight the remarks made by Marx to the effect that Smith and Ricardo did quite well in analyzing the problem of the *magnitude* of value but failed completely in drawing out the implications of the *form* of value; in other words, failed even to ask the question of why "labor is

represented by the value of its product and labor-time by the magnitude of that value." (Mr. Meek actually quotes a part of these remarks, but in a somewhat different connection, besides giving the wrong impression to readers by using the term "bourgeois political economy" whereas Marx was referring to the "classical political economy.") I have long since felt that the major contribution by Marx in the field of value theory was in pursuing the implications of the *specific form* of value which labor takes under the system of commodity production and I still feel, as I suggested two decades ago, that it would be better to call Marx's theory " the value theory of labor" rather than "the labor theory of value."

Meek's final chapter, where he takes up the operation of the "law of value" under socialism and monopoly capitalism, is naturally the most appetizing. But in the end, it is rather disappointing. I should like to have seen him devote more attention to how the wage rate as the price of labor power can be explained by the labor theory of value, and also how relative prices in international transactions could be explained by the same theory in the present-day world. But more basically, a question arises in my mind as to how he relates his understanding of Marx's theory of value with the oft-repeated dictum by Marxists that the contradiction of the *social* character of production and the *private* character of property ownership is basic to capitalism. This latter proposition seems to imply that where the private character of property ownership is abolished as under socialism the productive powers of a society will show themselves in their "true" light, namely as *social* productivity, thus changing the social form which concrete human labor takes while permitting pragmatic flexibility in the method of recouping the surplus for investment purposes. Such a train of thought leads us to a number of extremely interesting questions as regards the application of the labor theory of value to socialism. The book under review does not, and probably is not intended to, enlighten us on this type of problem.

In the case of a book of this kind, criticism is easy. Therefore, on balance, I must say that Meek has done a great service to the profession by making a serious attempt at least to make the labor theory of value a subject debatable in terms of the contemporary scene. In particular the conceptual framework which he, admittedly in a somewhat schematic form, proposes towards the end of his book, as a guide to the concrete investigation of exchange relations in the different stages of commodity production, is quite original and should be challenging to economists, Marxists and non-Marxists alike.

SHIGETO TSURU

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Zinstheorie. By FRIEDRICH A. LUTZ. (Zürich: Polygraphischer Verlag. Tübingen: J. C. B. Mohr (Paul Siebeck). 1956. Pp. 195.)

This is not so much a *Zinstheorie,* a theory of interest, as it is a *Zinstheoriegeschichte,* a concise history of thought on interest. Lutz makes a distinction between theories of interest for a stationary economy, those for a progressive economy, and so-called monetary theories of interest. He groups

his material accordingly. Finally, and in rather sketchy form, he attempts a synthesis and builds toward a positive theory of his own.

There is a painstakingly detailed exposition of the interest theories of Eugen von Böhm-Bawerk, Knut Wicksell, Gustav Åkerman, Friedrich A. Hayek, Léon Walras, Irving Fisher, Frank H. Knight, some forerunners of monetary theories of interest (among whom Lutz counts notably Joseph A. Schumpeter), and Lord Keynes. This is complemented by a less ambitious survey of the post-Keynesian discussion of interest problems, where John R. Hicks and Abba P. Lerner are given particular attention. In his expository technique Lutz apparently emulates Gottfried Haberler's *Prosperity and Depression*. There is the same scholastic patience in describing arid details of theories that the author deems demonstrably false and convincingly demolishes in critical summaries at the end of each chapter. He is both outspoken and fair.

Naturally, the treatment cannot be equally penetrating and felicitous in all cases. While Böhm-Bawerk, Wicksell, and Walras are expounded with lucidity and Lutz will have ingratiated himself to all students for the plausible explanation of Åkerman's hardly accessible theories, the treatment of Hayek appears somewhat perfunctory and strangely aloof. This is the more remarkable since the author's (and Vera Lutz') *Theory of Investment of the Firm* professed heavy indebtedness to Hayek's *Pure Theory of Capital*. Also, the discussion of the admittedly difficult Knight occasionally makes one still wonder what it is all about. The part concerning monetary theories of interest is probably not less well done than the preceding chapters, but here Lutz competes with an industry of skilful expositors. The topic is still too live, it seems, to be treated as history, and too abundant and kaleidoscopic to be dealt with in some forty pages.

In the final part, Lutz moves toward a positive theory of interest "that does everything a theory can possibly do" (p. 158). I would submit that such a general goal is a will-o'-the-wisp or methodologically self-defeating. Nor does Lutz adhere to the program. Indeed, it is the *structure* of interest rates, their spectrum, so to speak, that he is mostly concerned with. He does not begin to pierce beyond his previous contributions to this field. A brief appraisal of the empirical evidence on entrepreneurial behavior vis-à-vis interest rates is unsatisfactory in that not even the better-known results of recent years are cited or evaluated.

There can be no doubt, however, that Lutz has written a welcome addition to the expository literature. Translated into English, the first three parts of the book should get on the reading lists of graduate theory courses as they are usually taught in this country. While later parts could be shortened, earlier parts might well be amplified by a similar treatment of economists like, *e.g.*, William Stanley Jevons, Rudolf Auspitz, and Richard Lieben, who, invariably eulogized in the better books on doctrine, are certainly not too well known for precisely what their specific contributions really were.

EBERHARD M. FELS

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Hobson and Underconsumption. By ERWIN ESSER NEMMERS. (Amsterdam: North-Holland Publishing Co. New York: Kelley & Millman. 1956. Pp. ix, 152. $4.00.)

To the casual student the underconsumption doctrine of John A. Hobson is a simple one. As Professor Nemmers points out, this attitude toward the work of Hobson is attributable to the fact that Hobson wrote many books in no one of which is to be found his whole system of thought. Since the most widely read books are those in which he expounded his underconsumption doctrine proper, the relation of this doctrine to the remainder of his system is easily missed.

The author views Hobson's system as a whole and makes clear the connection between Hobson's theories of underconsumption, economic surplus, and imperialism. But Nemmer's book is what might be called a micro-examination of Hobson's essentially macroeconomics. After a very brief review of the earlier underconsumption theories of Sismondi, Lauderdale, Malthus, Rodbertus, and Marx and a short discussion of the possible derivation of Hobson's underconsumptionism he proceeds to a rigorous examination of Hobson's major theses. His underconsumption, economic surplus, and imperialism doctrines are each examined critically. He concludes by a critical analysis of Hobson's concept of fiscal policy and of his views on rationalization, wage policy, and tariff policy as techniques for achieving economic stability.

Although Nemmers finds much that is valid in Hobson, he is chiefly critical of what he feels to be Hobson's failure to develop an adequate theory of interest. Nemmers feels that Hobson's failure to recognize liquidity preference leads to a failure to attribute sufficient importance to monetary aspects of the cycle and to monetary policy. He is also critical of Hobson's reluctance to make a clean break with Say's law. By not doing so, Hobson seemed to imperil his underconsumption position.

Although Nemmers feels that Hobson lacks many of the refinements of latter-day income theory, the total effect of his analysis is to show that Hobson has a more solid position than even Keynes' belated respects would seem to indicate. By virtue of having accomplished this, the author has himself contributed a valuable work to cycle theory.

The most serious criticisms that can be made of the book are structural ones. The analysis seems at times to be needlessly repetitive. The book would also have benefited by a concluding summary and evaluation of Hobson and his place in income and employment theory. These structural faults, however, do not seriously detract from the value of this book to the student of income theory.

DAVID HAMILTON

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Friedrich List und Deutschlands Politisch-Oekonomische Einheit. By HANS GEHRIG. (Leipzig: Koehler & Amelang. 1956. Pp. 450.)

Friedrich List, whose life and thought is interpreted in this book, occupies a modest niche in economics' hall of fame. List's doctrines, unlike those of his

more illustrious contemporaries, are accepted around the world. Gehrig's book makes clear, however, that List's contemporary significance is not limited to the theory of industrialization through protectionism. He has at least two other points of contact with our day: German reunification and European integration.

Throughout his life, List was a passionate protagonist of German unity. And at the same time, he was an early proponent of the doctrine of a large common market, which to him meant primarily the German *Zollverein* and its expansion, but which, in today's context, might mean a European customs union. Gehrig, now in retirement in Halle in Eastern Germany, forbears to make these parallels explicit. He lets them speak for themselves. He does so by tracing simultaneously List's stormy career and the development of his thought.

List was an eminently political economist, always reacting to the problems of his changing environment. As a young employee in the public administration of Württemberg, he developed vigorous plans for the improvement of the bureaucracy and profound scepticism of the viability of small economic units. His ideas earned him a professorship at an early age. He went into politics, stuck out his neck too far, was promptly sentenced to jail for what amounted to un-Württembergisch activities, and was released on his promise to remove himself to the United States. Here, he rapidly made a position for himself as an economist and made money in the coal business. His intellectual reaction to the underdeveloped American economy was the espousal of infant industry protectionism.

Homesickness drew him back to Europe, where he might have arrived as American consul in Hamburg if the Senate had not refused to confirm President Jackson's appointment. He returned at a time when railways were becoming a practical possibility, and he immediately plunged into the subject. Railways must have appeared to him as a potential carrier for all of his major doctrines—German unity, the large market economy, and industrialization through protectionism. But though his prestige as a publicist and economist continued to grow, particularly after the publication of *The National System of Political Economy,* his luck in the sphere of business gave out. He lost his American money in the crisis of 1837. He continually failed in his efforts to inject himself into the administration of the various railway enterprises that he helped to promote. He was a discouraged and impoverished man, as well as a sick one, when in 1846 he ended his life.

The picture of the man that emerges from Gehrig's pages is that of a person with extraordinary brilliance and drive. European businessmen probably regarded his endless projects as visionary and his constant needling as a nuisance—this would account for his lack of business success after his return from America. Contemporary economists no doubt suspected him as a journalist and tended to neglect him. His deficient theoretical equipment probably contributed to his lack of impact in academic circles, though it may have increased his capacity for original ideas.

These ideas have all sooner or later been translated into reality. The rail-

ways were built and in good measure had the effect he expected. German unity arrived 25 years after his death. If today it is once more a burning issue, the memory of List reminds us that it is an issue with a long past. The European customs union, the modern version of the *Zollverein,* is being negotiated today. It is only in the area of industrialization and protectionism, where the victory of his ideas seems to be most obvious, that one must stop to ask what sort of a victory it is, and whether indeed these are List's ideas.

The answer to which Gehrig's book points is at best a qualified "yes." List was moderate in his proposals; he did not favor industrialization at all cost, including that of efficiency. Tariffs were to be removed as the economy progressed. Though he was a *dirigiste,* he was wholeheartedly entrepreneurial. His doctrine that capacity is more important than actual output does presage that school of thought in modern development economics which favors restriction of consumption as a means of increasing saving and investment. But reality has gone much beyond what he thought wise. His ideas have been accepted, but with such exaggeration that his spirit, though defeated in life and scarcely to be held responsible for posthumous influence, must surely view some aspects of present-day developmentia tremens with misgivings.

Henry C. Wallich

Yale University

Bildung und Verteilung des Volkseinkommens. Gesammelte Aufsätze zur Wirtschaftstheorie und Wirtschaftspolitik. By Erich Preiser. (Göttinggen: Vandenhoeck & Ruprecht. 1957. Pp. 351. DM 19, 80.)

This is a collection of articles which (with one exception) have been published previously in German periodicals and *Festschriften* between 1941 and 1956. The author is professor of economics at the University of Munich.

It speaks well for the author that he is able to reprint papers on economic policy which have appeared in Hitler Germany during the war. However, although his discussion of different methods of price control and of ambiguities in defining price levels was probably useful when first published, it does not add to what is general knowledge today.

The substantial contributions are in the two areas named in the title of the book: income creation and income distribution. The papers on income creation (1944-1956) were concerned, as early as 1944, with the relations between Keynesian and "classical" formulations on savings and investment, distinguishing clearly real and monetary, underemployment and full-employment aspects of the two approaches. Money creation and savings, capital exports and full employment, the multiplier and economic profit are discussed in a similar way. For the purpose of bringing the analysis in Keynesian terms to the German reader the papers have been and still are well suited. To give an example: Preiser describes (1950) German "active business-cycle policy" (p. 53). To him, in classical theory, increased investment requires decreased consumption with momentarily unchanged income; in the Keynesian world increased investment and unchanged consumption go together.

Increased income provides added demand, finally prices may rise. In the German case, according to Preiser, initially increased autonomous investment increases output, but additional savings follow, to be followed again by increased investment, etc. In this manner price rises can be avoided. To Preiser price rises would have been undesirable in Germany (1950) because the wage-price differential had been too high. Indeed, the relatively low wages did permit the high level of investment out of additional savings. There is, of course, nothing really new in the combination of initial pump-priming and further investment matched by savings. The burden of investment is borne in the Keynesian world, when full employment is finally reached, by lowered real wages (forced savings in the wake of price rises). Preiser prefers the German approach because there are individual voluntary savings sufficient to avoid price rises.

The paper "Der Kapital Begriff und die neuere Theorie" (1953) will baffle the American reader. To Preiser *Kapital* means investible funds; the German term for real capital is, he asserts, *Vermögen.* Hence his discussion is concerned with capital accounts and funds available. In the absence of wage and price reductions (which are depressive, p. 113) growth is only possible if additional funds are made available to enterprise by the banking system. To Preiser, in equilibrium investment equals savings by definition; in disequilibrium investment equals savings plus the entrepreneurial profits due to the price-level changes. This is a reformulation of the classical contention that investment is limited by voluntary savings and forced savings; the latter are equal to the profits mentioned above. Much justified emphasis is placed throughout the book on distinguishing entrepreneurial profit due to price-level changes from the Schumpeterian profit due to innovation.

The first paper on income distribution reviews Böhm-Bawerk's famous article on Power or Economic Law. Preiser's paper was earlier made available in English in *International Economic Papers,* Vol. II, 1952: "Property and Power in the Theory of Distribution." Economic distribution is a pricing process, hence "power" as such does not furnish any explanation. Market forms, indeed, influence the determination of incomes. Preiser, following suggestions of Eucken, makes the point that elasticities of factor demand and factor supply also influence distribution; these elasticities in turn depend on social conditions. If, for example, workers own land, the supply of labor at least in the lower wage ranges will be more elastic than if they are propertyless. Hence functional and personal distribution are not as independent of each other as is sometimes assumed.

Another paper sketches the limitations of marginal productivity theory: income is determined by the marginal revenue product (here identified as the Amoroso formula). Again the social element is introduced through the elasticities (p. 216). To Preiser, Marx's theory of exploitation assumes the existence of all-pervading quasimonopoly due to property distribution. J. B. Clark's theory of marginal productivity assumes competition throughout. Hence, according to Preiser, the two theories are not contradictory, as commonly thought, but rather complementary to each other.

The third article questions Stackelberg's contention that consistently lower estimation of future goods (Böhm-Bawerk's second ground) proves necessarily the existence of positive time preference. Preiser points out that consistent underestimation of future goods may be due to positive liquidity preference alone.

The book is carefully written, terms are clearly defined, and arguments are carried to their logical conclusions, using from time to time customary algebraic income analysis. The style is simple, as German books go. Some of the topics have been treated extensively in the American literature. There are, though, occasional new formulations that may be of interest not only to the German reader. This is a fine piece of recent German theorizing. It is far superior in clarity and conciseness to most German writings, as far as I can judge. It should be worth-while reading to anyone interested in German critical elaboration of Keynesian thought and of economic theory.

WALTER FROEHLICH

Marquette University

Die Grundlagen des Historismus in der deutschen Nationalökonomie. By GOTTFRIED EISERMANN. (Stuttgart: Ferdinand Enke Verlag. 1956. Pp. xv, 249. DM 28,00.)

The emergence of what is loosely referred to as the German historical school of economics and its later spread in Germany is probably much less puzzling a phenomenon than Professor Eisermann claims. However, no special justification is needed for an attempt to explain the occurrence of given ideas as events in the history of thought and, more generally, as social events. Eisermann restricts his analysis to the three writers who are said to form the "older historical school": Wilhelm Roscher, Bruno Hildebrand, and Karl Knies. Gustav Schmoller and the "younger historical school" are not considered.

Usually in book reviews remarks about style are relegated to the last paragraph. In the present case it seems, however, useful to begin by saying that the book under consideration is so poorly organized and written in a language so disdainful of its function of communicating ideas that it is very difficult to read.

In the preface the author states his intention of explaining the rise and success of the historical school in terms of the sociology of knowledge. Accordingly he devotes the first four chapters of Part I to a survey of the highlights of German history in the early decades of the last century. However, the division into distinct chapters on the political, economic, social, and intellectual (*geistig*) background results in a great deal of tiresome repetition and confusion. The reader well versed in Western history after the French revolution will find these chapters superfluous. The reader unfamiliar with this period will find them too brief and too unsystematic to be of much help. The chapter on the two precursors of the historical school, Adam Müller and Friedrich List, which concludes Part I, contains a wealth of valuable information. Yet the author does not make really clear what precise place—if any

—the doctrines of these two men occupy in his explanatory scheme. Incidentally, no mention at all is made of Alexander Hamilton's influence on List (*e.g.*, the infant-industry argument).

In Part II the author examines in detail the works of Roscher, Hildebrand and Knies. If I correctly understand him, he argues that the "older historical school" had its origins in the German romantic reaction to the rationalism of the Enlightenment. In contradistinction to the individualism of the classical economists, it is chiefly characterized by an organistic approach to society. Born and developed in the climate of the rising German bourgeois class and the frustrated popular aspirations for national unification, it also shows a strong liberal-nationalistic flavor. Concern with the economic and political needs of the Germany of their time leads the three writers to emphasize the unique aspect of socio-economic events, and to develop a historical relativism hostile to universal laws. Confronted, moreover, on the one hand with the social evils of early capitalism, and on the other hand with the rise of the new working class and of socialism, they sought a middle way of social reform within the liberal bourgeois State.

Eisermann's approach suffers from two weaknesses, one factual, the other methodological. First, he follows tradition uncritically in assuming the existence of an "older historical school." Schumpeter has already pointed out in *Epochen der Dogmen und Methodengeschichte* (Tübingen 1924) and again in his posthumous *History of Economic Analysis* (New York 1954), that Roscher, Hildebrand, and Knies had actually little in common and did not form a "school" at all. Moreover, they were certainly not as antitheoretical as some later critics—probably under the influence of the famous Menger-Schmoller controversy—have assumed. While the author does point out Roscher's classical-theoretical inclinations (pp. 136,150-51,157), he mentions Knies' chief work, *Geld und Kredit*—a theory of money and credit along essentially traditional lines—only in a brief and rather embarrassed passage (pp. 227-28). It is true that the teaching of these three men is critical of a priori reasoning and places strong emphasis on empirical studies. Now, empirical research in economics means largely, and until recently almost exclusively, work with historical data. However, nothing in this is basically opposed to modern reasoning in economics, or for that matter to reasoning in any empirical discipline. It is regrettable, therefore, that the author formulates his task as that of explaining why "such obviously quite 'reasonable' men who were not without professional ability . . . could believe such absurdities *(Abstrusität)* . . ." (p. vi). It must also be regretted that he fails to clarify his own conception of theory. There are indications that his attitude towards inductive generalizations (low-level empirical laws) is not well thought through.

Second, the author does not seem at all to appreciate the limitations of his approach. So far the sociology of knowledge yields no more than interesting but quite tentative hypotheses. It can not yield rigorous proofs. As a result his explanation is mostly superficial and shows no awareness of the need for the precise formulation of the relationships between the phenomena to be

explained and the explaining data. For example, we are told (p. 5) that Hume's dissolution of the concept of causality corresponds to the decomposition of the medieval social order *(Ständegesellschaft)*. Again, Hildebrand's theory of the three economic stages is explained as the "bourgeois counter-proclamation against Engels' teachings and the Communist Manifesto" (p. 177).

In spite of shortcomings, however, this is a very learned study of the work of five important social scientists of the last century. It brings together a great deal of material, some of it new, some not easily accessible. Economists interested in the slow and devious development of their science will find this book well worth perusing.

EMILE GRUNBERG

University of Akron

Economic History; Economic Development; National Economies

Studies in the Agrarian History of England in the Thirteenth Century. By E. A. KOSMINSKY. Edited by R. H. Hilton and translated from the Russian by Ruth Kisch. Studies in Medieval History, No. 8. (New York: Kelley & Millman. 1956. Pp. xxviii, 370. $7.00.)

The author of this book, Eugeny Alexeyevich Kosminsky, is a distinguished Russian historian and a member of the Academy of Sciences of the U.S.S.R., an honor conferred only upon scholars and scientists with outstanding accomplishments. In Russia, where everything is planned, the Academy of Sciences plays an important role in promoting research and in selecting the works deserving publication.

In England, Kosminsky is considered a leading authority on English agrarian history. Although the main results of his research are available in three articles published in *The Economic History Review,* scholars will welcome this somewhat abridged translation of his book, which contains the statistical and factual evidence underlying his conclusions.

Russian interest in English agrarian history is not a new development but dates back to the nineteenth century. One of the first to study the manorial system and to make major contributions was a Russian professor, Paul Vinogradoff, who settled in England, taught at Oxford, and was even knighted as a reward for his academic achievements. In Russia, Vinogradoff's teaching and writings influenced Alexander Savine, who investigated the dissolution of the monasteries and Demetrius Petrushewsky, who wrote on Wat Tyler's Rebellion. Kosminsky is the latter's pupil and pays tribute to his great predecessors while criticizing them, of course, for not adopting a Marxian point of view.

In his preface, the author frankly states that his book "has been written on the basis of Marxist-Leninist method" and that he uses Marxian terminology. Accordingly, feudalism is regarded as a mode of production rather than as a political and social institution. It found its economic realization in feudal rent, the instrument of exploitation by which the surplus labor of the peasantry was confiscated by the ruling class, composed of lay and ecclesiastical

landlords. The manor or feudal estate was the traditional organization for the appropriation of feudal rent. As oppressive landlords attempted to increase labor services and to raise money rents, there arose a "never-ending class struggle which filled the life of the manor's inhabitants." I am inclined to believe that in their daily life medieval peasants were more concerned with weather and crops than with class struggle. It is true that history records a few peasant revolts but they were far less common than feudal warfare and baronial uprisings. Nevertheless, a book review is not the place to discuss Marx's interpretation of history or theory of exploitation. Since the author clearly states his point of view, no reader will be deceived and it would, therefore, be unfair to challenge him on ideological grounds. It appears more fruitful to concentrate on his specific contributions, unaffected as they are by preconceived doctrines.

As source material, Kosminsky uses mainly the Hundred Rolls or *Rotuli Hundredorum*, a survey conducted in 1279 to investigate the loss and destruction of royal rights during the troubles of Henry III's reign. They have not been preserved for the whole realm, but only for Huntingdonshire, Oxfordshire, and parts of Bedfordshire, Buckinghamshire, and Cambridgeshire. In certain respects, the Hundred Rolls are comparable to William the Conqueror's Domesday Book. It so happens that they cover a territory where manorial organization was thought to be dominant. However, Kosminsky's investigation reveals that the typical manor with a demesne worked by villeins who owed labor services to the lord was not prevalent except on large lay and ecclesiastical estates. At one extreme, there were estates without demesne and, at the other, estates composed only of demesne without dependent villein land. On many medium-sized and small manors the labor services due from the villeins were insufficient to cultivate the demesne, so that the lord had to rely on the hired labor of cotters and landless peasants. Kosminsky draws the conclusion that nonmanorial forms of organization cannot be regarded as a mere exception. In any case, the conventional picture does not correspond to reality. As Kosminsky further points out, vill, or village, and manor do not necessarily correspond: a vill may lie in several manors or a manor may include several vills. With regard to the commutation of labor services into money rents, the author shows convincingly that this development is not connected with the rise of a "money economy." As markets for agricultural products developed both at home and abroad, landlords, especially on ecclesiastical manors, sought to increase both labor and money dues.

The Hundred Rolls are among the few medieval sources which lend themselves to statistical treatment, and Kosminsky makes an extensive use of this method. At the same time, he insists repeatedly on the variety and complexity of manorial organization. Yet his method shows that he is interested only in uniformities and mass phenomena. As a result, his treatment lacks spark and life. Even the oppressive landlord remains in the background and makes only fleeting appearances on the scene. As for Piers Plowman, the peasant, whether serf or freeholder, he finds himself reduced to a mere number in a statistical series. There are no individuals, only classes. The author would, however,

insist that such criticism is unfair and that his treatment was conditioned by the nature of his source material and his own selection of questions. Granting these limitations, it is certain that he has made some very real contributions to English agrarian history.

RAYMOND DE ROOVER

Boston College

New Horizons in Planning—A Study of Planning Techniques with Special Reference to India's First and Second Five Year Plans. By ALAK GHOSH. (Calcutta: World Press Private. 1956. Pp. 141. 10*s* 6*d.*)

To achieve accelerated economic growth in an underdeveloped country during the planning period a technique of "planning with unbalanced growth" should be adopted. This is the leading theme of the above study which attempts to explain the main strategy of the second five-year plan of India. The fundamental feature of this strategy or technique is an unbalanced growth between heavy industries and consumer goods industries. The marked growth of heavy industries would create a proper capital base which would generate the necessary sustaining power in the course of future rapid economic development. This planning with unbalanced growth contains of course a potential danger of inflationary pressure. The author believes that with the help of direct controls which are part and parcel of all planned process of growth, the excessive consumption by the people could be checked. The bulk of the investment in heavy industries would come from the "economic surplus" which could be generated if consumption levels could be kept at the "rock bottom level" as had been done under a totalitarian set-up by the Russian planners but might not be possible in a country like India.

The author discusses ways of mobilizing this potential economic surplus hidden in the country's economic structure. Various methods of taxation and savings through which this surplus could be mobilized are briefly indicated. An extraordinary technique involving deficit financing—increase in the money volume—for covering the gap between total expenditure and total revenue during the planning period is indicated. Some amount of inflation might result from this technique, but one should not be worried about its consequences if proper safeguards are adopted. After discussing briefly input-output analysis, the capital-output ratio and linear programming, the author deals with the technique of planning with unbalanced growth.

Before turning to the book's part on planning in India two comments should be made. The author states without qualification that greater emphasis on heavy industries is needed in order to achieve accelerated economic growth within a shorter period of time. Should this be true also of countries which do not have resources for establishing heavy industries? As to the methods of financing, the author realizes the danger of inflation resulting from increased money volume but does not deal anywhere with the effects of deficit financing on the balance of payments.

The author regards the first plan of India as a rather modest one. The government was largely absorbed in the problem of achieving stability and

could not do proper justice to the limited investment programs in the public sector. Yet substantial progress in over-all development was achieved. The total outlay on the plan in the public sector was around $4,000 million (somewhat below Rs. 20 billion) which compares with the revised target of about $4,800 million. Most of the physical targets of the plan were achieved and deficit financing on a large scale was used only in the last year of the plan. National income increased more than expected and the rate of investment increased every year. The plan's over-all basic strategy of raising the development potential of the agricultural sector was sound, and its emphasis on the agricultural extension program and river valley projects aroused a new spirit of enterprise and enthusiasm at the grass roots.

By stepping up the expansion potential of agriculture and achieving financial stability, the first plan paved the way for the ambitious second plan. The basic strategy of the second plan is directed to the task of raising the development potential of the industrial sector with emphasis on heavy investment in the capital goods sectors. Large investments are planned in the public sector in iron and steel, heavy machine building, fertilizers, electricity, and railways. The production of finished steel is to increase threefold, that of cement nearly threefold, of coal by two-thirds. The major technique of developing capital goods industries is supplemented by a minor technique which primarily emphasizes household *cum* cottage industries rather than factory production for meeting the increased demand for consumer goods.

There is no doubt that preparation of the second plan started with establishing physical targets, and only afterwards the attempt was made to find financial resources for this bold program. The total proposed expenditure was estimated at $10,080 million (Rs. 48 billion) which amount has since been increased by more than 10 per cent. Only about half the original amount would come from budgetary resources which include a rather optimistic estimate of loans raised from the public and of small savings. Of the uncovered half about $1600-1700 million was expected from external resources, leaving an uncovered gap of Rs. 16 billion ($3300-3400 million) which was to be met by deficit financing to the extent of Rs. 12 billion. Taking into account the use of sterling balances the author reduces deficit financing to Rs. 9 billion ($1,900 million) and believes that inflation which would arise from it could be held in check by various controls. Ghosh is worried, however, about the gap of Rs. 4 billion ($800 million) remaining after all the deficit financing, and believes that the main part of it will have to be covered through additional taxation.

The author comments that "the emphasis on heavy industries is the correct approach for accelerated process of industrial development provided the outlook in the agricultural sector is bright." The expected increase in the agricultural sector and the development of cottage industries would be the chief supplier of goods to match the greatly increased purchasing power. The author has justified doubts with regard to prospects of a fast increase in the cottage industries sector.

It is very surprising that Ghosh does not discuss the direct and indirect im-

pact of this plan on the balance of payments of India. He does not examine whether the country will have sufficient foreign assets to meet the cost of the needed imported equipment and increased imports resulting from increasing incomes. Although he suggests controls to check inflationary pressure, does he believe that physical controls will be strong enough to avoid serious balance-of-payments difficulties? Space does not permit a detailed analysis of "planning with unbalanced growth." The author ends up by saying that a definite judgment on this problem would be possible "after the Plan has completed its performance." Some conclusions can already be drawn after the first year of the plan. The balance-of-payments deficit is much larger and India's foreign exchange assets have been reduced much faster than expected, so that various restrictions have had to be introduced to relieve the drain on foreign assets. It appears that the foreign exchange component of the plan had been underestimated. In addition there has been substantial investment in the private industrial sector requiring imports of capital goods not envisaged by the planners.

Although it might be too early to pass judgment, it appears certain that the second five-year plan will have to be slowed down at least in some sectors unless substantially greater external assistance than expected is provided or the country resorts to various physical controls which are against its basic philosophies. Probably the plan in its original concept was too bold and if it were carried out India would hardly avoid the pitfalls of the plans of most of the totalitarian countries. The author does not seem to be fully informed, for instance, about the planning in Poland or China.

Ghosh belongs to the school of planners who maintain that an adequate rate of growth is needed to maintain social and political stability and achieve progress; and because of lack of resources, planning with unbalanced growth and some inflation is indicated. Yet if this planning is not carefully prepared and the proposed unbalanced growth with all its implications analyzed in detail, such development might either result in dangerous inflation or require over-all physical controls. In either case the achieved growth or progress might be paid for by jeopardizing the existing political and social structure. Although nobody would question the need of an adequate rate of growth in underdeveloped countries the author has failed to prove his case for planning with unbalanced growth.

ANTONIN BASCH

Washington, D.C.

Development for Free Asia. By MAURICE ZINKIN. (Fair Lawn, N.J.: Essential Books, for Institute of Pacific Relations. London: Chatto & Windus. 1956. Pp. viii, 263. $4.50; 21*s*.)

This book contains Mr. Zinkin's reflections on the problems of development particularly of the democratic underdeveloped countries of Asia. These reflections are based on his keen and sympathetic observation of the Indian scene first as a civil servant and then as a businessman. He has very intelligently interpreted his experience with Indian problems and this interpretation

serves as a guide to the understanding of other underdeveloped countries of Asia. Because of his experience and keen observation he gives a much better idea of these economies than any presentation of mere economic statistics could give. Admittedly, however, this is not a scientific treatise on economic development.

This book is divided into five parts: Part I deals with general problems; Part II, with economic problems; Parts III and IV, with political and social problems; and Part V, with Indian planning.

Zinkin's main thesis can be summarized very briefly. Since the process of economic development cannot take root in these countries without an antecedent change in the whole set of values of the people and their social structure, and since such a change could come about spontaneously only very slowly—and time is of the essence for these countries—the State will have to play an active role in accelerating the process of change. However, in countries supposedly functioning democratically, there can be no state-coercion. The politicians and to some extent the bureaucrats therefore have a difficult yet a key role to perform in persuading people to change their habits, attitudes and institutions to suit the needs of development. The politicians will not succeed and the people will not be persuaded unless the politicians have a consuming passion for development, and a vision which appeals to the deepest emotions and impulses of the people. This vision however has to be realized by the small property-owners—the peasant, the artisan and the shopkeeper who politically form the most effective majority—and by the intelligentsia who give expression to the urges and aspirations of the small man Inevitably there would be a socialist bias in their development schemes and a hostile attitude of the state, as well as the majority of the electorate, towards big private business. To induce the small property-owner to contribute his utmost to the process of development, he will have to be provided with credit, marketing facilities and enough education to enable him to make use of such facilities. Cooperation and a community-development approach, now sought in India, seem to the author to be the ideal way of making the small man economically effective. In addition, the state will have to develop all the necessary external economies, which no private individual or a group has either the means or the ability to develop.

There are two dangers, according to Zinkin, in this State-initiated process of development. First, the state may overreach itself and try to do things which could be profitably left to private individuals. And second because of a variety of pressures and socialist bias, the state may select and execute economic projects in an economically wasteful way.

Hence the author's insistence on the use of the criterion of maximizing profits in the selection as well as the implementation of development projects (in his chapter on the function of profits, the author indulges in an amusing amateur exercise in welfare economics). Here, however, he fails to realize that the problem of choice of production techniques for a single industry and the problem of choice of investment pattern are analytically two distinct problems. Even with regard to the former problem, the use of the profit-maximiza-

tion criterion by a firm would not lead to an optimum combination of inputs from the social point of view, since private and social costs of labor are likely to differ because of disguised unemployment in these economies. As to the problem of choice of investment pattern, the criterion of maximizing the rate of return (or rate of growth of income) by itself does not enable us to make the final choice. For example, how are we to choose between two investment patterns, one of which gives a higher rate of growth initially and thereafter a lower rate than the other? Obviously in such a case, the final choice will have to be exercised in terms of political and social considerations. The author's profit-maximization criterion by itself does not help us in such cases. Of course nobody would disagree with the author if he merely wanted to suggest that whatever the final choice, the decision-makers should be fully aware of the implications of all possible alternatives.

Probably because of his lack of economic *expertise*, Zinkin commits the fallacy of composition. He believes that because people in underdeveloped economies are in the habit of buying gold, the total savings for the purposes of productive investment are smaller than what they otherwise could have been. He fails however to realize that as long as gold is neither produced at home nor imported from abroad, individual purchases of gold could not reduce the total savings of an economy, as individual savings in such a case would merely be transferred to the gold dealers, who would be able to use them for other purposes. He commits a similar error when he suggests that an economy like a private firm can use its money profits earned during a planning period to finance its development projects in the next planning period (pp. 44-55).

Zinkin has many wise things to say on a variety of other topics like the role of the bureaucrat, economic consequences of equality, education, etc. Yet, because of the general and comprehensive way in which he has tried to tackle the whole social process of development, this book might appear to social scientists as somewhat superficial and platitudinous; because of its sound common sense, however it would certainly prove instructive to the layman in which category could be placed a majority of the politicians and bureaucrats.

V. V. BHATT

Bombay, India

Contemporary China. Edited by E. STUART KIRBY. (Hong Kong: Hong Kong University Press. London and New York: Oxford University Press. 1955; 1956. Pp. xi, 264. $5.00.)

This is the first annual volume of a new and promising publication in the English language devoted entirely to objective economic and social studies on contemporary China. Eleven papers comprise Part I or more than one-half of the book. These are followed by 40 pages of documents, an annotated bibliography of Hong Kong, Taiwan, and other publications, and a 38-page chronology of events (July 1954-August 1955) especially useful to economic and general historians.

Seven of the eleven articles are directly concerned with economic issues. The latter may be grouped under two headings: the principles underlying Communist Chinese economic planning and some facets of its practice; and the basic issue of population growth. In addition, there is a single paper on Chinese trade with Japan.

One can readily agree with much that E. F. Szczepanik has to say on what he calls "Mao-ism," particularly his observation on the Communist leader's apparently successful blending of the elements of historical materialism, the Leninist NEP, and latter-day Soviet-style planning with its emphasis on regional planning, domestic accumulation, and agricultural collectivization. In the light of more recent developments, however, one may question Mao's hitherto unchallenged status as an apt pupil who has been able to learn from Soviet mistakes, especially as recent unsatisfactory developments in agricultural production do not appear unrelated to Mao's decision to step up collectivization. The evolution of the planning structure and of the first five-year plan of an economy in transition presents a fascinating subject. Unfortunately, the discussion by E. V. Hooten suffers from lack of information, and the reader is denied the opportunity of gaining a clear view of the administrative and procedural aspects of Chinese planning which may have some bearing on the manner in which production reports are processed into statistics that sing praise of the Communist revolution. A more fruitful result is obtained, however, by Szczepanik in another paper dealing with the Chinese budget. Few will seriously dispute the author's account of the fictitious budget surpluses (regarded as sacrosanct in an inflation-conscious country), the suppressed inflation, etc., although there is considerable room for disagreement on the exact ratio of investment to China's national income. Since a national-income study is reportedly under active preparation by some of Communist China's best economists, one can anticipate growing controversy on the last point.

Urbanization, population growth, and food supply are discussed by Y. Muramatsu, T. R. Tregear, N. J. Ling, R. Strahan, and O. L. Dawson. The curious reader may find Strahan's biometric comments interesting, and one can only express regret that Dawson's contribution is not longer, particularly because it could be so valuable. Surely the statement of the chief regional economist of the Food and Agriculture Organization that "it seems doubtful whether the government can keep up to its own food needs in the next 20 years" (p. 49) calls for substantially more elaboration than is given in the text.

Shortcomings are inevitable in such a new venture. Among them are the narrow coverage of the bibliography and the short period of the chronological record. But the editor is fully aware of these matters, and for his effort in initiating a publication that may prove to be eminently useful, he certainly deserves every encouragement.

YUAN-LI WU

Marquette University

Histoire de demain. By JEAN FOURASTIÉ and CLAUDE VIMONT. (Paris: Presses Universitaires de France. 1956. Pp. 127.)

This excellent brief introduction to problems of economic growth falls into two parts—"Countries of Poverty" and "Countries of Abundance." The first chapter vividly states the problem of population pressures on inadequate resources in underdeveloped economies; the second deals with theoretical possibilities of technical progress; and the third examines the practical possibilities of technical and cultural assistance. Chapter 4 poses the question of the technical possibility in the advanced economies of abundance for all; and the final chapter discusses what the authors term the "false" problems of technological unemployment, technological progress and money, and technological progress and individual liberty.

The book is written in a lucid style, often making its points in memorable phrases. In Part I, the authors stress the reality of the Malthusian devil for underdeveloped countries and state cogently the crux of Western problems of technical assistance. The vast technical investment necessary to raise the standard of living of these countries to a minimum of human health and decency can come only from the West, but technical assistance in itself is not enough. A cultural revolution, engrafting the spirit of Western science into the indigenous cultures of these countries, is a prerequisite to economic revolution. This process requires "human assistance" as well as technical assistance. This will not be achieved by sending teams of "experts" but by economic "missionaries" speaking the "language" of the backward peasant masses who can win their love and confidence. Their way of life can be made over only with their own consent.

Part II stresses the limits to Western technical progress imposed by raw materials shortages and human psychology. The authors feel that human desires will always outstrip possible human performance, so there need be no fear of economic stagnation.

A translation would be highly desirable, as—apart from the language difficulty—the book is excellent for supplementary reading in the introductory principles course or an introductory text in courses on economic growth or non-Western economics.

J. TAYLOR

University of Rochester

La costruzione economica sovietica—formazione, struttura, tendenze. By GIORGIO ROLETTO. (Milan: A. Giuffrè, for Istituto di Geografia Economica dell'Universita di Trieste. Pp. xii, 294. L. 2.000.)

The number of inaccuracies in this study is staggering. In the bibliographical references to French, German, and English publications, the authors' names and the titles are cruelly misspelled. Russian authors have escaped the indignity, but only because this book on Soviet Russia does not cite any original Russian sources. Such Russian terms as are given in transliteration are often garbled beyond recognition. Legends to diagrams frequently are

either wrong or incomplete, and are unencumbered by source references. "Millions" may mean either "thousands" or "billions." Many historical dates are wrong, and Mr. Maurice Dobb is introduced as a Russian economist.

Lapses of the pen and negligent proofreading can of course mar an otherwise excellent book. In this case, however, the harmony of form and substance is undisturbed. For the book is superficial in the extreme. It is conceived as a part of a series of several volumes, each one of them to be devoted to an "economic superpower"; the next to follow will be a volume on the United States. The purpose is to make comparisons and to draw some sort of balance sheet. Yet it is difficult to see what will, or possibly could be, compared on the basis of the present effort. It touches on everything and penetrates into nothing: history, economic and political, physical environment, ideology—the Russian spirit—political structure, and the Soviet economy. The historical sketches of long periods, barren in their brevity and at times almost incoherent, are hardly helpful. In the discussion of the Soviet state, the author confines himself to a recital of the Soviet constitution and contrives not to mention the role of the Communist Party. Since the author equates the articles of the constitution with Soviet reality and then proceeds to compare them with prerevolutionary Russia, he is able to draw some surprising and unconvincing conclusions.

The economic discussion consists partly of fairly disjointed factual information and partly of generalities. As often as not the "facts" supplied are simply the targets of the five-year-plans, and the question of discrepancies between goal and attainment is seldom raised. The whole problem of consumers' goods output in Russia tends to be treated in terms of Malenkov's promises which are presented as a radical and lasting change in Soviet policy. Such statistics as are used are mostly Soviet official statistics obtained secondhand from people who were uneager to analyze them critically. There is no attempt in the book to understand the role of the basic categories of the Soviet economy, such as cost, prices, profits, interest rates, and others, and to gauge the efficiency of Soviet economic performance. Neither the standards of economic analysis nor those of statistical inquiry which are displayed in this book are even remotely adequate for any serious treatment of the Soviet economy, let alone for the ambitious comparisons between Russia and the West which are the ultimate aim of the present series.

Nevertheless, the author does not hesitate to draw bold conclusions. Thus, the reader is informed that Russian agriculture has "tremendous potentialities," or that the relations between Soviet Russia and Eastern Europe are based upon the *do ut des* principle. Whatever the validity of such conclusions, any suspicion that in reaching them the author had analyzed the factors pertinent to productivity trends in Russian agriculture or had wondered about the terms of trade in Russian commerce with Eastern Europe would be entirely unfounded.

There would be little justification in reviewing a book of this nature were it not for a broader aspect involved. The field of Soviet economic studies has

made great progress during the last 10 or 15 years. Studies of scholars such as Bergson, J. Chapman, Hodgman, Galenson, Jasny, and others have cast much light on significant areas of the Soviet economy. The author betrays no sign of acquaintance with that literature. But this is between him and his conscience. The point rather is that books of this sort are fairly representative of the level at which the subject of the Soviet economy is still treated over wide areas of Europe. The Italian economists, who carry with them a long and brilliant tradition, are probably the most unprovincial group in the whole profession. Any *campanilismo* is quite alien to them. Their interest in, and their knowledge of, foreign literature is most impressive. But the area of Soviet economic studies is an exception. Progress achieved elsewhere, and particularly in the United States, is blandly disregarded, with the result that incompetence, bias, and irresponsible generalization still prevail, unchallenged by mature analysis and painstaking empirical research. This is an incongruous situation. To point this out has been the sole purpose of this review.

ALEXANDER GERSCHENKRON

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Desarrollo Económico de Chile, 1940-1956. Instituto de Economia de la Universidad de Chile. (Santiago: Editorial Universitaria, S.A. 1956. Pp. viii, 210)

This valuable work is divided into two large sections: the first section concerns the general aspects of the economic development of Chile while the second section constitutes a more detailed examination of the more important sectors of the economy. The first chapter summarizes the tendencies and changes in the Chilean economy in the last fifteen years and briefly analyzes them as they influence, and are influenced by, economic development. Most of the remaining first section is concerned with the two very important problems common to practically all underdeveloped but developing countries: inflation and foreign trade. The second section is devoted to the major production sectors and public finance. The study shows the very real progress that has been made in Chilean economic development.

The Chilean government in the last few years has been veering away from a policy of "interventionism," as the Institute calls it, toward directing the economy by means of broad general controls. There is, for example, less use of direct subsidy, tax discrimination, tariff protection of industry, and differential exchange controls; and more emphasis on freer exchange markets, general monetary controls, and government investments of a broad basic nature such as in the transport, petroleum refining, and electrical energy industries. In the present work it is stoutly maintained that the economically underdeveloped countries can and must emphasize the use of conventional tools of economic analysis and policy-making in seeking solutions for their development problems, rather than proceeding as though each economy were essentially unique. Most economies differ more in degree than in kind. France is used as an ex-

ample of the chaotic situation that can result from trying to base economic policy primarily on the assumed uniqueness of the conditions of a particular country.

Of some interest in connection with the recently revived discussion on the terms of trade is the fact that this study makes use of a new concept: the *net* capacity to import, which is an index of net capacity of payments divided by an index of import prices. The term net capacity of payments is defined as the sum of the value of exports, the balance of invisible trade, and the balance of amortization and servicing payments on external debt. Each of the latter two items would have a negative sign where invisible imports exceed invisible exports and where amortization and servicing payments on external debt exceed like payments *to* the country in question. The conventional method of computing the capacity to import is to multiply an index of the volume of exports by the terms of trade where the volume of exports is defined as the value of exports corrected for their price changes. It is claimed that the conventional method is inexact for measuring the true power of a nation to import goods since income from exporting goods is reduced by other payments on balance to foreigners or is increased by other receipts on balance. As a result the net capacity to import may change in any two periods due solely to changes in the balances of invisible trade and amortization and servicing payments on external debts while the capacity to import would remain unaffected by those factors.

This study is a preliminary one for the Institute which now intends to make more searching investigations of narrower topics on the basis of the general background data provided by the present study. The amount of work done and the quality of workmanship revealed by this study augers well for the usefulness and reliability of the results of the future research program.

Primarily as a statistical study of the Chilean economy, the book is unique in providing for the first time a great quantity of original data on that economy in addition to data which has been published elsewhere. It is not only invaluable for the student of the Chilean economy, it also provides for the student of economic development some valuable analyses as well as the opportunity to make some tests of developmental hypotheses by means of the relatively extensive Chilean data. This work used in conjunction with a study of national accounts of Chile soon to be published by the Production Development Corporation should give an economist a reasonably well-rounded view of the past, current, and developing economy of Chile.

JOEL W. SAILORS

University of Houston

The Colombo Plan and Other Essays. By FREDERIC BENHAM. (New York and London: Royal Institute of International Affairs. 1956. Pp. viii, 89. $1.50.)

Dr. Benham has given us a short series of essays on the economic problems of the underdeveloped countries, particularly in the Indian Ocean area. His

advice to the Asian nations is to lay well the foundations for economic growth, rather than rushing ahead with overambitious plans for the introduction or expansion of modern manufacturing industries. His argument is that modern industry requires an adequate home market, that is, there must be purchasing power to buy the new factory products. In the Asian countries the home market "must come mainly from the surplus of agricultural products produced by the cultivators over and above their own needs. At present, these surpluses are pitifully small. . . . It is essential to expand agricultural output both in order to provide more food and in order to provide a market for local manufactures and services" (p. 6). Benham therefore commends the emphasis of development programs like the Colombo Plan on projects for increasing yields in agriculture, for improving transport, and for expanding the supply of electric power.

In agriculture he urges the Asian countries to specialize in the production and export of products for which they are well suited, such as rubber in Malaya. He pooh-poohs the idea that such countries should diversify their production so as not to be too dependent on single crops. Rubber pays well, he asserts, and "surely a fluctuating income at a high level is better than a stable income at a low level?" (p. 47). At the same time he urges the Asian producers not to seek too high prices. "Primary producers can help to avoid slumps by charging prices which do not lead to large and growing stocks; and the underdeveloped countries can help by maintaining their volume of imports" (pp. 69-70). He couples this advice with the warning: "Restriction of output is wasteful" (p. 71). The interest of the underdeveloped countries lies in expanding the total volume of world trade, in keeping up both their exports and their imports. By developing their agriculture and trade, they will be laying firm foundations for the healthy expansion of industry (p. 54).

He sees relatively little scope for deficit financing since this can pass over all too easily into inflation. He is pessimistic about international commodity agreements on primary products, "as the practical difficulties in the way are too great." He counsels the Asian countries to plan their development on a long-term basis, to be prudent and build up reserves when prices are high, and to forge steadily ahead (on the basis of these reserves) when prices sag. He concludes with an emphatic statement about the problem of poverty in Asia, the West Indies and Southern Europe: "The only permanent solution," his last sentence reads, "is a drastic limitation of births" (p. 89).

All of this is old stuff to the economists in the Asian countries. Mostly, they refuse to "buy" it. In some of the newly independent Asian countries Benham's position is taken to be tantamount to asking them to carry on economic relations with the West in the nineteenth century colonial style, even after these nations have won their independence. So far as the new Asian governments are concerned, the nineteenth century is gone forever.

DANIEL THORNER

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Statistical Methods; Econometrics; Social Accounting

National Income Visualized: A Graphic Portrayal of How Economic Activity is Measured. By ARTHUR O. DAHLBERG. (New York: Columbia University Press. 1956. Pp. x, 117. $3.50.)

A product of the Visual Economics Laboratory at Columbia University, this book is designed to "pioneer a new method for visualizing economics . . . and to explain national income predominantly with visual techniques." It is an elaborate and ingenious pictorial representation based on the familiar circular flow diagram, utilizing, with certain modifications, the threefold institutional classification of sectors: consumers, business, and government. Starting with relatively simple models the author develops all of the various national income concepts of the Department of Commerce, and their components, in a series of 50 different diagrams. Section 1 is devoted to building up gross national product from the expenditure side; section 2 concerns the earnings and receipts sides (or "disbursement circuits") of the national accounts; section 3 gives a portrayal of each of Commerce's income and product (or sector) accounts.

The usefulness of this elaborate technique for the understanding of national income accounting must be left to each person's judgment. Some will undoubtedly find it of assistance in presenting the accounts. This reviewer, however, has had little pedagogical success with any but the simplest circular flow charts; the understanding of intricate diagrams frequently becomes a substitute for, rather than an aid to, understanding the accounts.

Whatever value the diagrams in the book may have, their usefulness is materially lessened by the accompanying verbal explanations and evaluative comments, many of which will tend to give the student erroneous or misleading ideas on the meaning and rationale of the accounts. A completely nonoperational distinction is made between monetary and physical flows (p. 7). Investment and government purchases tend to be identified with personal saving and tax flows: "Just as Government buys goods and services for the Consumer with his tax money, so Business Enterprise buys some goods for the Consumer with his money savings" (p. 14). As a result, the author has difficulties in fitting government saving into his circular flow system (p. 58), and misinterprets the character of the saving-investment identity implied by Commerce's accounting framework (pp. 69-70; 78-80). Indirect business taxes are virtually identified with federal excise taxes, which, prior to the second world war, "were so small that the Department of Commerce could largely ignore them as a separate item" (p. 37). (The ratio of all excise and sales taxes to net national product has changed little since the depression; the ratio of all indirect taxes to NNP has actually fallen.) The author treats depreciation as a nonfactor charge rather than as a part of factor cost in his discussion of the difference between a market price and a factor cost valuation of output (p. 39). The preceding sample is by no means complete.

Selected tables from the 1954 *National Income Supplement*, containing most of the annual series, are reprinted in an appendix. The diagrams and

some of the tables in the text utilize the unrevised data contained in the 1951 Supplement.

If it were not for the quality of the accompanying comments, the book might well help to fill the needs of those anxious to experiment with visual aids and graphic techniques in teaching national income accounting.

EDWARD C. BUDD

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Economic Systems; Planning and Reform; Cooperation

The Dynamics of Capitalism. By JULIUS T. WENDZEL. (New York: Harper and Bros. 1956. Pp. xii, 175. $3.50.)

Mr. Wendzel maintains that neither severe cyclical instability nor secular stagnation is inherent in capitalism. On the contrary, he finds that the major causes of severe instability and stagnation lie in institutional arrangements which are not inherent in the system itself. This is an optimistic diagnosis, of course, since man-made institutions can be changed by man. Wendzel's purpose, accordingly, is to point the direction of desirable institutional changes.

The argument can be readily summarized since it is an application of the familiar Schumpeterian thesis that the innovator occupies the key role in capitalist economic growth. It is the new entrepreneur's ability to command access to capital which determines the rate of economic growth. The most important determinants of growth are the availability of capital to the new entrepreneur and the financial framework which facilitates the transfer of the use of capital. It is in this mechanism, however, that Wendzel finds existing institutional arrangements and government policy inadequate. Interest rates to new firms are "unnecessarily" high, on the one hand, and, on the other, present monetary policies tend to convert normal and healthy fluctuations into disastrously unhealthy booms and depressions.

Wendzel notes that the interest rates paid by small firms are much higher than those which large firms must pay. In 1946, for example, a Federal Reserve Board survey of member bank loans outstanding showed that interest rates varied with the size of the firm, ranging from 1.9 to 5.2 per cent. The small entrepreneur not only has to pay more for the use of capital, but the conditions imposed on its use and repayment are more stringent. Nor does equity financing provide an escape from the high charges, for the S.E.C. has "found that the cost was nearly 22 per cent of proceeds for flotation smaller than $500,000 and slightly over 1 per cent for flotations over $50 million" (p. 64).

The author recognizes that some risk differential should be charged new firms, but he purports to see an element of discrimination over and above the risk differential. He thinks that this is due to the structure of the capital market. Loanable funds are highly concentrated due to inequalities in wealth ownership, and these funds are further concentrated by being channeled pre-

dominantly through a few large financial institutions. Contrasted with small numbers on the lending side of the market is the scatter of a large number of small firms seeking funds. Wendzel says that this makes it costly for lenders to lend to the small borrower. It is reasonable to expect the cost per dollar of loan to be greater for many small loans than for fewer and larger loans; but it does not follow that the differential would be less if the lenders were smaller and more numerous. Indeed, one might reason that the specialized credit functions possible for a large lender admit economies in evaluating credit risks which would be unavailable to smaller lenders. A possible consideration might be the greater bargaining power accruing to size, but the author explicitly rejects this as a major line of explanation. Although I find his rationale of discrimination unconvincing, there is at hand a consistent theoretical explanation in the textbook case of price discrimination between separable markets. The model requires that the lender be able to separate his markets and that small borrowers have a lower interest elasticity of demand for funds. The first condition seems reasonable in this case and, since the alternatives of internal financing and equity financing are more feasible for established firms, the second requirement also seems to be met. The acute empirical observations of the author become more convincing when related to such a theoretical framework.

A second line of reasoning involves a surprising implication. The author is shocked by the high failure rate among new enterprises—something like one million new firms start each year, of which half fail within two years. Wendzel sees a reason for this high failure rate in a sort of vicious circle: High interest rates compel new enterprises to start out small, and their very smallness confronts them with high interest rates. If interest rates were lower, more of the new firms would survive and make significant contributions to economic growth. As it is, the high interest rates multiply business failures. This is a tenuous line of argument. Lower interest rates would presumably also lead to more business starts, and there is no obvious reason why the failure rate should decrease. Either that or else the argument amounts to saying that the entrepreneur is either ignorant or irrational: High interest rates which in fact should deter him do not overcome his enthusiastic, but unfounded, optimism.

The author's use of Schumpeter's conceptual association of the innovator, new men, and new firms is open to question. It seems to me that there is by now enough evidence of the results of large-scale industrial research to suggest that the early Schumpeterian association of innovation and new firms should be re-examined (which, in fact, Schumpeter did in *Capitalism, Socialism, and Democracy*, p. 132). I am hesitant to base present-day policy on an unquestioned assumption that what may have been substantially true for the nineteenth century is equally applicable today.

In the final four chapters, the author inquires into the policy implications of his analysis. He proposes that entrepreneurs be made more aware of the dangers of smallness, that legal restrictions on equity financing by insurance companies be further relaxed, that government encourage new business

rather than small business as such, and that the government continue its policy of allaying fears of the possibility of major depressions. The proper role of government, however, is to modify institutional arrangements rather than directly to intervene in the economy in response to each minor bobble in full employment.

The insights into capitalism, which I would guess stem in large part from close contact with "the real world," enable the author to formulate a set of policy suggestions which are essentially sound, I believe. Although this brief and well-written volume is designed to increase the layman's understanding of how free-enterprise capitalism works, the book may be read with profit by economists and their students.

DONALD E. STOUT

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Business Fluctuations

Consumption and Business Fluctuations: A Case Study of the Shoe, Leather, Hide Sequence. By RUTH P. MACK. (Princeton: Princeton University Press, for the National Bureau of Economic Research. 1956. Pp. xvii, 293. $7.50.)

One of the themes of *War and Peace* is that no simple theory of history could possibly be true because the course of history is determined by an infinite multiplicity of minutely small facts and the complex network of interrelations among them. Isaiah Berlin summarizes Tolstoy's view as follows: "Our ignorance of how things happen is due not to some inherent inaccessibility of the first causes, [but] only to their multiplicity, the smallness of the ultimate units, and our own inability to see . . . and record and co-ordinate enough of the available material. Omniscience is in principle possible even to empirical beings, but, of course, in practice unattainable."[1]

The reader of Mrs. Mack's study cannot fail to be impressed by the multiplicity of causes and the complexity of their relations, as well as by the industry and skill of the author. He may even feel at times that she has accepted the challenge implicit in the last sentence of the quoted passage. (She would, of course, be the first to deny it.) In any event, he will conclude that the heavy effort required of a writer who tries to do even rough justice to the complexity of economic life is, in this case, amply rewarded.

Mrs. Mack's task is to examine the behavior of a consumer-good industry, or rather sequence of industries, in the business cycle. She has chosen as the subject of her case study the shoe-leather-hide sequence in the interwar period, basing her selection largely on the availability of data on a monthly basis.

What is the response of the industry sequence to cyclical fluctuations in its retail sales? Does it simply passively transmit the fluctuations through the productive mechanism, or does it tend to smooth them out by allowing its inventories to act as a countercyclical cushion? Or alternatively does it

[1] Isaiah Berlin, *The Hedgehog and the Fox* (New York, 1953), p. 31.

amplify the fluctuations by superimposing swings in inventory investment on those in sales? And why? Above all, why?

It is to these questions that Mrs. Mack has addressed herself. Starting with retail sales, she has worked her way back through the industry sequence to the first appearance of hides on the market, examining at each stage sales, output, orders (where available), and inventories. Thus the main body of the study consists of an intensive analysis of the behavior of four groups: consumers, retailers, shoe manufacturers, and leather tanners, followed by an examination of hide supplies and prices. The discussion of each group contains first a description of the statistical findings, followed by an attempt to find explanatory hypotheses consistent with these findings. A final pair of chapters draws together the observations and explanatory hypotheses for the industry sequence as a whole.

Mrs. Mack's approach is to search for regular patterns of behavior in expansion, in contraction, and especially at turning points. She is confronted at the outset with the difficulty that the period 1921-40 includes only 9 turning points in the National Bureau's business-cycle chronology, and only 7 in a reference cycle she has drawn up for the shoe-leather-hide (S-L-H) sequence, hardly enough cases on which to base firm conclusions. She has discovered, however, that the data show shorter fluctuations within the cyclical expansions and contractions. Furthermore, these fluctuations do not seem to be mere erratic irregularities or saw-teeth, and they appear with considerable uniformity in most of the key series. The discovery of these subcycles, as Mrs. Mack calls them, is not only of interest in itself, but also an invaluable methodological aid to the study because it provides no less than 28 turning points in the S-L-H reference chronology. Thus the book has become largely a study of industry behavior in the subcycle. Incidentally, Mrs. Mack presents some preliminary evidence that these subcycles exist in the economy generally.

Because of its central role, the subcycle reference chronology merits further attention. In the first place, it should be noted that Mrs. Mack's distinction between cycles and subcycles does not correspond chronologically to the distinction between major and minor business cycles made by such writers as Hansen and R. A. Gordon. The latter either classify cycles in the National Bureau's reference chronology into major and minor, or regard the major cycles as longer sweeps embracing several of the National Bureau reference cycles. Mrs. Mack's S-L-H subcycles, on the other hand, with a single exception, are shorter than the National Bureau reference cycles. Nevertheless, as we shall see, there is an important similiarity in the properties attributed by Mrs. Mack to the subcycle and by Gordon and Hansen to the "minor cycle."

The average duration of the 6 complete cyclical phases (*i.e.*, expansions or contractions) covered by Mrs. Mack's S-L-H chronology is 34 months, with expansions averaging 49 months and contractions only 19 months. The average subcycle phase lasted only 7½ months, with virtually no difference between expansions and contractions. Thus each phase of the cycle contained on

the average between 4 and 5 subcycle phases. This last average, however, is particularly misleading. Examination of the chronology shows that the distribution of subcycles is by no means uniform. The 3 cyclical contractions are punctuated, in all, by only two subcyclical expansions, while the 4 cyclical expansions (including the incomplete one which was still in progress at the terminal date of the study) are interrupted by no less than 9 subcyclical contractions. Furthermore, in 58 months of cyclical contraction, the subcycle was in its expanding phase in only 11. By contrast, out of a total of 173 months of cyclical expansion, the subcycle was contracting in 61. Thus the subcycle appears to be primarily an interruption of the expansion phase of the cycle. This fact is hardly surprising since the cycle was in an expanding phase in almost three-quarters of the months covered, and since contractions have long been considered shorter, sharper, and presumably therefore less susceptible to interruption than expansions. The point is nevertheless worth noting, especially since Mrs. Mack does not call attention to it.

Furthermore, the duration and amplitude of subcycles has been by no means uniform over the period. For example, the long expansion of 1924-29 was interrupted by 3 rather mild subcyclical contractions averaging 12 months. The 1932-37 expansion contained 4 subcyclical contractions which lasted on the average only 4½ months. Three of these occurred early in the period, between 1932 and 1934, and the charts indicate that they were violent gyrations. Evidently there was a good deal of backing and filling before the recovery from the deep depression of 1929-32 took firm hold. It would be interesting to know whether Mrs. Mack has found significant differences in the relative behavior of individual series and in causation as between the gentle sweeps of the 1924-29 subcycles and the sharp reversals of 1932-34. (One piece of relevant evidence, bearing on the role of inventories, is mentioned below.)

Mrs. Mack finds that fluctuations in retail sales are transmitted up the line to earlier stages of the industry with increased amplitude. To put the same point in a different way, fluctuations in inventory investment tend to reinforce fluctuations in sales, with two interesting exceptions. This tendency is more marked the shorter the fluctuation. That is, the relative importance of inventory movements is greater in subcycles than in cycles, and greater in short subcycles than in long ones. This finding is reminiscent of Abramovitz's observation that inventory investment played a larger relative role in longer business cycles than in shorter ones, and the view of Hansen and Gordon, among others, that the "minor cycle" is dominated by inventory movements.

Mrs. Mack also finds that there is no lag in the transmission of fluctuations through the industry sequence. Turning points at the earlier stages tend to coincide with or to lead those in retail sales. Since Mrs. Mack does not attribute this timing to correct forecasting of turns in retail sales, it obviously calls for special explanation. The search for this explanation becomes the focus of much of the study, and provides a continuity, a story line, almost an element of suspense, that is skillfully maintained throughout.

The two cases in which inventory behavior tends to dampen rather than

magnify fluctuations are stocks of finished leather held by tanners, and packers' stocks of hides. Tanners typically attempt to stabilize their output by holding large stocks of finished leather, especially of standard types like sole leather, and by drawing down these stocks in expansions, rebuilding them during contractions. Similarly, packers maintain large stocks of hides, which they allow to vary inversely with tanners' purchases. In both cases, it is possible to hold large stocks because the commodities are durable and are not subject to style change. The incentive to do so arises, in the case of tanners, because variations in the rate of operations are costly, and, in the case of packers, because the output of hides, which are a by-product of cattle slaughter, varies in response to fluctuations in demand for meat rather than for leather.

What is the net result of these offsetting tendencies? If the shoe, leather, and hide industries were considered as a single vertically integrated industry, would its payments into the income stream, in the form of payments to factors, fluctuate more violently than its receipts, in the form of retail sales? While the data required for a quantitative answer are not presented, the qualitative indications are entirely clear that payments do fluctuate more violently than receipts, *i.e.*, that the dampening effect of finished-goods inventories of packers and tanners fails to offset the amplifying effect of other forms of inventory fluctuations. (If for no other reason, this would be true because by far the greater part of the value of the final product is added after leather leaves the hands of the tanners.)

The present reviewer does not have the temerity to try to summarize Mrs. Mack's series of explanatory hypotheses for the behavior patterns she has discovered, but two of the most important elements may be mentioned. The first involves the correction of involuntary changes in inventories resulting from unforeseen changes in retail sales. By constructing a hypothetical "corrective orders" series, and adding to it orders designed to replace expected sales, Mrs. Mack constructs a hypothetical series of total orders placed by retailers, which does in fact lead retail sales and has a greater amplitude of subcyclical fluctuation. Unfortunately, there is available no series of actual orders of retailers with which this hypothetical series can be compared. The closest approximation is a series on wholesale sales, to which the hypothetical order series conforms with gratifying fidelity.[2]

The second explanatory element involves changes in inventories on hand and on order, measured in terms of monthly sales, in response to changes in "market prospects." When those prospects are improving, businessmen will try to lengthen their "ownership positions," as Mrs. Mack calls the sum of inventories on hand and on order. But this process will not continue indefinitely even though prospects continue to improve. There is an upper limit to the number of months' supply of shoes (or leather, in the case of shoe

[2] Mrs. Mack finds this lag in inventories, followed by a compensating correction, which plays the central role in Metzler's inventory cycle model, far more significant than the instantaneous effort to maintain a constant inventory-sales ratio as sales change, which is assumed by the pure acceleration model.

manufacturers) they will want to hold. This upper limit, which is flexible but none the less real, is dictated largely by the elements of seasonality and style in shoe sales. Thus, no matter how bullish a retailer might be, he would not want to order more of a seasonal product than he expected to sell in the coming season. When this ceiling on "ownership position" is reached, inventory accumulation of this sort will cease, and orders will decline (unless sales are rising so rapidly as to compensate for the cessation of "market extension"). Similarly, on the down side, there is a lower limit in terms of months' requirements below which stocks are not allowed to fall, and this floor can cause a contraction of orders to reverse.

The reader is often left gasping at the skill and ingenuity with which Mrs. Mack deploys her material and puts it through intricate maneuvers. He may also at times become breathless from trying to keep up with the pace, although the author maintains it with unflagging enthusiasm and cheerfulness. The heavy demands that the study makes on both author and reader are, for the most part, inherent in the subject matter and the approach to it. If reality is complex and intricate, as Tolstoy thought (and who can doubt it?), any conscientious attempt to describe and explain it will also be complex.

This reviewer encountered some difficulties of a different sort when, at certain important points, the thread of the argument seemed obscure. For example, Mrs. Mack finds it necessary, in connection with the effect of changing market prospects, to measure the confidence with which expectations of future price changes are held. In the absence of any direct measure, she is forced to use a proxy variable, and she chooses for that role the absolute level of prices, without explaining the rationale of this choice (p. 158). If past experience showed that price fluctuations are confined within certain limits, it is easy to see that expectations of changing prices based on projections of current movements would be less firmly held as actual prices approached these limits. But there is no indication that this is what Mrs. Mack had in mind.

Again, purchases of imported hides, based on price expectations that turn out to be in error, are said to cause reversals of price movements in some special way that escapes this reader (p. 215). Here again, it is understandable that errors in purchases of imported hides are particularly likely because of the long lag between order and delivery, and that these errors are likely to take the form of overbuying in expansion and underbuying in contraction. This, however, does not seem to be Mrs. Mack's point. It would appear that all supplies, however obtained, influence purchases and hence prices. But Mrs. Mack appears to impute some special and unique influence on prices to one type of supply—those imported on the basis of erroneous price expectations.

Both these points, it will be observed, bear on the crucial issue of the reversal of subcyclical movements. A further and more general problem arises in the same connection. It is not always clear whether Mrs. Mack has set herself the task of explaining why subcyclical turns take place at all, or only that of explaining why turns in other series lead or coincide with those in retail sales, which, from the point of view of the present study, may be con-

sidered an exogenous variable. In other words, is she trying to explain the behavior of the shoe-leather-hide sequence *in* the subcycle, or to explain the subcycle itself? In the first case, the behavior of retail sales, including their subcycles, can of course be assumed. In that event, however, it would remain to be explained by a broader analysis.

If, on the other hand, the objective is to account for the subcycle itself, a self-contained explanation is required. Furthermore, because the present study deals with only a single industry, which by itself exerts a negligible effect on consumer incomes, that explanation cannot make use of the repercussion of changes in the industry's activity on consumer incomes and consumer purchases from the industry, a limitation of which Mrs. Mack is fully, and presumably wistfully, aware. (This type of feed-back is, of course, an essential element in the Metzler inventory cycle.) In short, it would be necessary to explain how subcycles might be generated within the industry even in the absence of subcycles in retail sales. At times it seems that Mrs. Mack is trying to do just that, but it is by no means clear.[8] Some of her lines of explanation (like the ceiling and floor on changes in "ownership positions," referred to above) can cause truly endogenous turns. Others, like the behavior of "corrective orders," require turns or retardations in retail sales. Perhaps the key to the uncertainty lies in Mrs. Mack's remark that *if* all industries exhibited synchronized subcycles, the feed-back through consumer incomes would be present (p. 247). It may well be that she hopes in the future to close the circuit by showing that synchronized subcycles do exist, but that meanwhile she is doing what she can to explain the subcycle without this powerful support.

In view of the central position of the subcycle in the present study, it is not surprising to learn that its author has turned to the study of subcycles in the economy at large. We may confidently expect that the difficulties mentioned in the preceding paragraphs will speedily disappear when she is freed of the limitations inherent in a study that is confined to a small segment of the economy.

Meanwhile, a possible solution to the problem may be advanced with all due tentativeness. It is possible to explain the subcycle as a phenomenon internal to the industry within the framework of *cyclical* fluctuations in the economy. One may assume that each level of retail sales has associated with it a desired or appropriate level of inventories at each stage. When sales change, the actual levels of inventories might for various reasons alternately overshoot and undershoot the new target, at least for a time. Without a feed-back by way of consumer income and demand, such a subcycle might well die out soon *if* retail sales maintained a steady level. But the cyclical movement of retail

[8] See, for instance, the remark on page 247: "On the downward path as on the upward one, retardation and reversal tend to occur as a *logical development* of the factors set in motion during the previous months" (italics supplied). On the other hand, on the same page we find: "If reversal in the industry were confined to a return to hand-to-mouth buying . . . , its duration and severity would be short and mild. But all of the [subcyclical] movements . . . have been characterized by a drop, or at least a marked leveling, in consumer buying."

sales would provide the external shock required to maintain the errors in inventories, and hence the subcycle in the industry. (One powerful item of evidence against this hypothesis should be mentioned. Mrs. Mack remarks, "For a single industry sequence, there are only a few significant distinctions to be made between processes whereby the . . . [cyclical] and the . . . [subcyclical] turns come about" (p. 240).

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Money, Credit and Banking; Monetary Policy; Consumer Finance; Mortgage Credit

Studies in the Quantity Theory of Money. Edited by MILTON FRIEDMAN. (Chicago: University of Chicago Press. 1956. Pp. v, 265. $5.00.)

In the initial essay of this volume, which is the first published product of the Workshop in Money and Banking at the University of Chicago, Professor Friedman, who heads the Workshop, restates the quantity theory of money in such a way as to show us that in a broad sense we are all "quantity theorists," and sets the stage for the performances of four former students of his. This essay stresses that the analytical importance of the quantity theory of money does not hang on whether V, the income velocity of money, is a numerical constant, but (in part) on whether there is stability in the functional relation between the demand for money and the variables that determine it. Thus, if $V = v(A,B,C)$, where the letters in parentheses stand for the variables that determine income velocity, the crucial point is not whether V is stable but whether v is.

Friedman points out that it is possible to approach perfect stability in v by adding more and more variables to the function. Therefore, if the hypothesis is not to be emptied of its empirical content, it is necessary to limit sharply the number of variables. As in the analysis of the demand for a consumption service, these variables should reflect a budget restraint, relative prices, and tastes and preferences. Those considered empirically important by Friedman are the market rate of interest on bonds and equities, the average expected rate of price rise, the ratio of wealth to income, real national income, and a portmanteau variable that includes the factors that affect tastes and preferences and the relevant technological conditions of production. It is important to note that the demand for money is not broken up in the usual way into transactions, precautionary, and speculative demands. "Rather, each dollar is . . . regarded as rendering a variety of services. . . ."

Given M, the nominal stock of money, and V, the level of money income is determined. But Friedman asserts that this is not a complete model for the determination of money income until the determinants of the variables that determine V are specified. Only if these variables are rigid and fixed, or if V is highly inelastic with respect to them, is it possible to omit this step. Even then, the model determines only money income and not real output. To determine the latter requires more information.

Friedman shows that, as a model of income determination, the quantity theory would be weak if v were highly unstable, if the variables that determine V were the important ones determining M, or if increases in the real stock of money, under certain conditions, always lowered V proportionately, so that real output was unaffected, a proposition in which the "liquidity trappists" have great faith. These possible objections to the quantity theory are raised by Friedman without any attempt on his part to meet them head on. Rather, he states that the proof of the pudding is in the eating, and waves on his students with their four essays.

The first is an excellent study by Philip Cagan of the monetary characteristics of seven hyperinflations that followed the two world wars. The data show that real cash balances generally fell during the hyperinflations as the rate of change in prices rose. There were, however, marked fluctuations in real cash balances from month to month. Cagan considers the demand for real cash balances to be a function of real wealth, real income, and expected returns on various forms of holding wealth. He points out that the first two variables were probably relatively unimportant during these episodes. The third variable amounts to the cost of holding money, which in these circumstances is really the same thing as the expected rise in prices. Consequently, the hypothesis is advanced that the demand for real cash balances is a function of the expected rise in prices, and that the latter, in turn, is an exponentially weighted average of past rates of price increases. This last assumption serves to introduce a lag between the expected and the actual rate of price rise.

The hypothesis was tested by fitting a least-squares regression to time series for actual real cash balances (assumed equal to the demand for these balances) and the expected rate of price rise. The statistical results strongly supported the hypothesis. Friedman notes in his essay that this study provides "an interesting example of the difference between a numerically stable velocity and a stable functional relation: the numerical value of the velocity varied enormously during the hyperinflations, but this was a predictable response to the changes in the expected rate of changes of prices." The rise in income velocity during the hyperinflations was based on past increases in prices, and the latter were supported by increases in the stock of money. Thus the inflations could have been stopped at any time by putting a lid on the stock of money. That is to say, the inflations could have been stopped if the governments had halted their attempts to gain rising shares of real output in this way. But it is best to stop at this point before we get too far into the income-expenditure approach.

The second study is on German Money and Prices, 1932-44, and was done by John J. Klein. It is a mystery to me why both Friedman and Klein treat the subject-matter of this study so gingerly. The facts seem simple enough. After 1938 the income velocity of money fell sharply, though not as sharply as the crude figures would suggest. This was due primarily to a sizable increase in government expenditures, financed in large part through the banking system, coupled to direct controls of almost every conceivable type. The

result was that the money supply rose much faster than money national income, a result that is perfectly familiar to all of us since the second world war. But for some reason this is considered a very baffling thing to Friedman, who states: ". . . Klein's examination of German experience in World War II is much less favorable to the stability and importance of the demand for money. Though he shows that defects in the figures account for a sizable part of the crude discrepancy between changes in the recorded stock of money and in recorded prices, correction of these defects still leaves a puzzlingly large discrepancy that it does not seem possible to account for in terms of the variables introduced into the above exposition of the theory. Klein examined German experience precisely because it seemed the most deviant on a casual examination. Both it and other wartime experiences will clearly repay further examination." Is this because Friedman cannot believe that direct controls can ever be effective?

Klein calls the decline in income velocity "an unusual result." He notes that Germany during the war period is a contradiction to the hypothesis that money supply and income changes are proportional. He reasons that "The large increase in the stock of money might be expected to produce rising prices when all resources are employed. This did not occur in Germany. To combat the inflationary potential of its increase in money supply, Germany had controls over prices, wages, demand, production, consumption, etc., all concomitants of repressed inflation. Yet, other nations had such controls and did not manage to avoid inflation." That is to say, if controls failed elsewhere why in the world did they not fail in Germany? Well, in the end he backs into the conclusion that it must have been direct controls, but he takes a long time to do it.

The third study, Inflation in the Confederacy, 1861-65, by Eugene M. Lerner, tells us that during these years in the South real cash balances, M/P, which is equal to T/V, fell. This was due to a rise in V, velocity, and a fall in T, real output. However, Lerner states, it is very difficult to assess the strength of each by itself. The rise in V, to whatever extent it did rise, was due to people's fear of inflation. That's about it. One wonders why Cagan's framework was not used by Lerner. Were they working at opposite ends of the Workshop? Incidentally, Cagan guesses that the expectation of currency reform led people to increase their real balances. Lerner, though, states that just the opposite happened in the South in 1864. Since most currency reforms penalize the person caught with money when the music stops, a fact presumably overlooked by Cagan, the response found by Lerner seems quite reasonable.

A substantial study on Monetary Velocity in the United States, by Richard T. Selden, completes the volume. After a critical examination of 38 series of income velocity presented by other investigators, Selden presents several new series of his own: a decennial series from 1839 to 1939; several annual series, one of which starts at 1899; and quarterly series from 1943 to 1951. These appear to be the most reliable series on income velocity now available, and by themselves are enough to justify the essay.

Selden's data show that income velocity fell at a declining rate during most of the 19th century, and that it reached a floor and became virtually stable in the first two decades of this century. In fact if the exceptional years of the depression and second world war are neglected, as they probably should be, the data strongly suggest that a floor has been maintained during the past half century or so. (This impression is further strengthened with the additional data of 1952-56.) This seems to me to be one of the most interesting facts to emerge from Selden's study, but it is almost entirely ignored by him. He simply notes that income velocity had a secular decline to 1919 (actually, there was no decline from 1900 to 1919), and that a straight line fits the data poorly. The decline in income velocity is attributable mostly to the rise in real income per capita. I believe that this is a highly inadequate explanation of the facts, but I have not got the elbow room to go into it. Selden has some interesting observations on short-term movements of income velocity, relating them to tastes, the cost of money substitutes (measured by the difference between long-and short-term rates of interest), cost of holding money (measured by yields on bonds and equities), and factors responsible for nonproportional movements in transactions and income velocities.

As Friedman says, the book contains some "juicy items." The eating of the pudding is not likely to cause indigestion. It seems beyond question, though, that much work still needs to be done on the demand for money over both short and long "normal" periods of time. There is nothing in the book to convince me that v is stable over such periods.

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Souvenirs d'un gouverneur de la Banque de France. By EMILE MOREAU. (Paris: Librairie de Medicis. 1954. Pp. xv, 624.)

Moreau became governor of the Bank of France in June 1926 at the urgent request of his friend Prime Minister Caillaux. He had previously been governor of the Bank of Algeria, and a member of the Committee of Experts set up to save the franc. Moreau like Poincaré, who shortly succeeded Caillaux, found it extremely painful to abandon his dream of bringing the franc back from its low point of 2 cents to its prewar par of 19 cents; both men were very conscious of the harm which devaluation would do to the *rentiers* and to the habit of saving which had always been the bulwark of the French economy. But Charles Rist, another member of the Committee of Experts, was even more concerned with the harm which would be done by a deflationary revaluation; he had observed the process in England, and was convinced that the French economy would not survive such a severe shock.

With the able assistance of Pierre Quesnay, Rist gradually brought Moreau to his point of view. The policy of revaluation was abandoned, the alternative policy of stabilization was adopted, and a technique for controlling the foreign exchange market was worked out by the Bank of France. In spite of the vacillations of Poincaré, the franc was brought back to about 4 cents, and held at that figure.

As the franc strengthened, and gold began to flow from England into France there was bound to be conflict with the English. Moreau makes frequent reference to the "imperialist aims" of the Bank of England under Montagu Norman. Here again, with some of the glamor stripped off, are accounts of the secret meetings of Norman, Strong, Schacht and Moreau, as they tried to work out solutions to their common difficulties. Moreau particularly resented British control over the Finance Committee of the League of Nations, and British efforts to force Poland and Roumania to stabilize under the auspices of the League, which meant, under the control of Britain. France at this time had her own illusions of international financial power because of her control over gold movements. On one occasion when Moreau journeyed to London especially to see Norman, the governor of the Bank of England pleaded illness and refused to appear; on other occasions there were frank and sometimes stormy discussions. In the end, of course, both countries lost the game, and by 1931 perhaps the only real gain was that the heads of the central banks had acquired the habit of personal meetings, and the Bank for International Settlements could be organized on the basis of that experience.

Of especial interest to readers in the United States will be the comments on the role of Americans. Although Moreau spoke no English, and had the small-town Frenchman's mistrust of foreigners, he found Americans in nearly all cases friendly to France and sympathetic with her problems, whether they represented private banking firms or government agencies. Benjamin Strong, then governor of the Federal Reserve Bank of New York, became a personal friend and advisor throughout these two years, and was in Paris for the final scene of the stabilization drama.

Strong's quoted comments about the situation in the United States at this time are also of interest. In June 1927 he wrote to Moreau that he could not lower the discount rate in New York because of the speculation in the stock market, and that he could not raise it because it might discourage business and create problems for the Treasury. Less than a month later he declared himself forced to lower the rate to 3½ per cent in order to facilitate Treasury operations.

It is a pity that more of the central bankers of our time have not kept such diaries.

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Public Finance; Fiscal Policy

Teoria della condotta economica dello stato. By GIUSEPPE UGO PAPI. (Milan: A. Giuffrè. 1956. Pp. xvi, 410. L. 2.500.)

In Professor Papi's own words, the aim of his book is to present a unified body of indispensable theoretical knowledge concerning the activities of the State, in particular policies aimed at economic stabilization and expansion. The author, a distinguished Italian economist, intended to establish a comprehensive and, to some extent, normative theoretical framework capable of

guiding such policies. What he has accomplished is unquestionably a very creditable synthesis of notions and principles of the general, fiscal, monetary, and business cycle theories—without, however, contributing much that is new. The *novum* may be found rather in his own formulations, some of which are indicated below. One explanation of this may perhaps be the fact that he sought to achieve an integration of his own ideas with certain concepts of other workers which, although once original, have in recent years become part and parcel of the economic analysis of government activities and responsibilities.

In a work of this type, non-Italian readers would probably have expected—and welcomed—an interpretation not only of the strong ties which now exist between Italy's economy and government, but also of the unique mutualism which prevailed between them during the Fascist era. While Papi deliberately largely disregards institutional factors in his abstract, deductive reasoning, the book fails to live up to its promise of comprehensiveness. Among the lacunae may be noted several economic questions in which the stake of his government has been of great importance for both the stability and the expansion of the nation's economy. In fact, one regrets the complete absence of any theoretical consideration of Italy's most pressing economic problems—chronic unemployment, and the elimination of the developmental discrepancies between the North and South. It is well known that these questions are of great concern to the national government and have stimulated theoretical inquiries in other countries.

Papi offers a methodological system for his interpretation of the relationships which develop between the State and all economic organisms. Intervention of the government is based on its "insurance activity" *(attivita assicurativa)* and the underlying "principle of insurance" *(principio assicurativo)*. These concepts imply that the State protects individuals and enterprises against risks whose occurrence may eventually result in destruction of private incomes. Government participation should be evaluated, and is justified, by the degree of success of the insurance activity; through this activity the government substitutes present certain cost *(costo certo attuale)* for future uncertain cost/risk. The desirability of government assistance finds expression in, and is measured by, the *minimo risultato utile,* which is synonymous with future uncertainty reduced to ascertainable proportions. When these concepts are applied, for instance, to government encouragement (protection) of certain production, present certain cost equals the tax revenue to be collected for this purpose; future uncertain cost is represented by the risk of excessive production (in relation to need or demand) induced by the subsidy; and *minimo risultato utile* is achieved when market conditions are so organized as to prevent (useless) accumulation of the subsidized commodity. Government interference should be appraised by its influence on prices, output and employment.

By introducing these analytical tools and the concept of "organized intervention" *(organismo di interventi)*—reminding the reviewer of teleological model-building—only in the last chapter of the book, Papi makes it difficult

for his readers to apply the concepts referred to above to all the preceding theory. His statement that the "insurance principle" is applicable to all ways in which governments absorb and release funds—unsupported as it is by any attempt to do this in the many suitable places in his book—is no substitute for a test of this interesting method.

A notable feature of this work is the attention (60 per cent of the volume) devoted to taxation and government expenditures. The theory which Papi sets out is a general one and is based on the operation of free (capitalist) economic institutions. It consists of micro- as well as macroeconomic elements and incorporates in part contributions from Italian, American and British economists. To the extent that the book may be designed for use by university students—as its didactic vein suggests—the insertion of some of the graphs usually found in textbooks of economic theory and public finance would have proved valuable. For all the careful logic of the author's arguments, it is doubtful whether the lay reader of economic literature will be able to follow some of them with ease. Mathematical aids are also lacking.

Among the many noteworthy conclusions which the author draws, at least three must be mentioned in this brief review:

1. Papi opposes progressive taxation, calling it discriminatory, uneconomic, and confiscatory. Progressive taxes (in contrast to proportional) hamper capital formation and endanger saving accumulation. In fact, they tend to "consume" themselves inasmuch as they facilitate evasion, prevent both the establishment of large enterprises and the creation of the economies of production, and reduce aggregate national income. In the author's opinion, progressive taxes are unsuitable for purposes of fiscal policy during cyclical fluctuations. Among his "canons," control of the tendency toward progressivity is as important as the necessity of avoiding taxation of capital, which, no doubt, Papi assumes to be always employed profitably and productively. He seems to disregard the fact that progressive taxes, through their redistributive effects, tend to raise the propensity to consume, thus exercising a long-term favorable influence on production and employment.

2. The efficacy of fiscal policy is discounted for several reasons. Although the author appears willing to condone temporary budget deficits, he is sceptical of any worth-while influence of tax reductions as well as larger public expenditures, and likewise of the adequacy of built-in flexibilities. He shows some distrust of functional finance, and contends that countercyclical use of fiscal policy is questionable because human foresight is imperfect, and tax systems, being rather rigid, can hardly be changed during cyclical phases whose duration is, moreover, unpredictable. Since monetary policies can not be depended upon either, the (only) hope left lies in the fact that all nations have been seeking greater financial stability. Economic fluctuations would be less feared if their theory could be absorbed by a theory of economic plans—individual as well as public.

3. Papi's panacea for the problem of unemployment is academic. His three conditions for the solution of involuntary unemployment (in which connection no mention is made of the underemployment from which Italy suffers)

are that free competition should prevail in the production of many goods; increase in real national income should be faster than that in population; and international trade as well as capital imports should be free of barriers. Government assistance is called upon to help create *eventi favorevoli* (favorable conditions) which would give rise to more intensive entrepreneurial activity which, in turn, would draw more people into the work force.

The book appears to have been written in the conviction that the government performs the function of a factor of production, and that for any adequate understanding of the fiscal impact on national income it is necessary to invoke the fullest understanding of economic theory. This need is doubtless increased by the fact that the theory of fiscal policy as a whole lacks integration.

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The Growth of Public Employment in Great Britain. By M. ABRAMOVITZ and V. ELIASBERG. (Princeton: Princeton University Press, for National Bureau of Economic Research. 1957. Pp. xiii, 151. $3.75.)

The object of this book, as the concluding sentence reiterates, is the modest one of compiling measures of the direct use of labor by the British government and relating the upward trend in public employment to the major developments influencing governmental activity. While the first half of this task may be modest, in the sense that it can be carried out by a limited amount of statistical digging, the second half involves a scamper over the whole field of economic policy for the better part of a century.

Curiously enough, the scamper is not only more exhilarating but it is in many ways more satisfying than the statistical digging. The authors give a fair and concise, if at times rather perfunctory, account of the growth of government responsibilities in Britain since 1890, including separate chapters on local government and the nationalized industries. Their comments on the forces of opinion or circumstance producing this growth are balanced and often penetrating; for example, their analysis of the nationalization acts provides a more adequate rationale of those acts than most of the debates in the House of Commons that preceded them.

On the other hand, the statistics of government employment are furnished in such proportion and for such a variety of dates that the reader despairs of ever catching sight of the wood because he is so assiduously surrounded with trees. Most government employees are, and always have been, in the armed forces; if the nationalized industries are set aside, the Post Office (itself really a nationalized industry) is the next largest employer amongst government agencies; and the remaining employees of the central government, while increasing at 4 per cent per annum in conformity with Parkinson's law (p. 55n.), number no more than 300,000 out of a total of 1.9 million. It would have simplified the narrative if it had employed this tripartite division, passing briefly over defense and the Post Office, and then shedding them from the subsequent totals. In this way, the reader would gain a clearer view

of the expansion in the miscellaneous third group on which, inevitably, the discussion concentrates.

Employment is analyzed only in terms of departmental groups; there is no breakdown by age, sex, occupation, or terms of employment. Yet if government employment, as distinct from government expenditure, or absorption of resources, has any intrinsic interest it is surely because, as is pointed out in Chapter 1, "governments are peculiar employers with their own characteristic criteria for employment and advancement," a point to which no subsequent reference is made.

Perhaps the most valuable parts of the book are the second and final chapters. Chapter 2 deals with the growth of government intervention in the second half of the nineteenth century and with the "ideological brakes" that slowed down this growth. It would seem that, in spite of the brakes, the rôle of government, especially local government, was growing faster at the end of the nineteenth century than at any later time, except in war. In 1851, only 1628 persons were engaged in the civil departments of the central government for general administrative purposes and the total staff of the central government, excluding the armed forces but including Post Office workers, tax collectors, dockyard workers, etc. was no more than about 40,000; local government employed a total of 31,000 workers, more than half of whom were policemen. These totals were much higher by 1891; and in the ensuing twenty years, local government alone increased from 150-200,000 to 660,000, or nearly half the total for such employment today.

The final chapter contains some interesting comparisons between British and American experience and shows that, making obvious allowances, the trends are remarkably similar. The comparisons include separate analyses of the figures for defense, postal services and education in the two countries in 1900 and 1950, the last of these being particularly revealing. There is also a short sketch of a theory of the interconnection between economic development and government intervention which lays stress on the influence of industrialization and urbanization and suggests that intervention may be first at the local government level while at a later stage local government functions are taken over by the central government.

This will undoubtedly be a valuable work of reference for British as well as American students of public finance.

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The Theory and Working of Union Finance in India. By R. N. BHARGAVA. (London: George Allen and Unwin. 1956. Pp. 308. 30s; $6.75.)

This work is an important addition on both the theoretical and descriptive levels to the growing body of literature on Indian public finance.

The first three chapters reveal the basic theoretical framework which is later applied to the Indian situation. He develops an essentially Pigovian approach to the public finance problem. The state is viewed as a decision-

making organism which endeavors to maximize aggregate welfare of its citizens. Following the usual logic, the state rationally adjusts expenditures until the marginal social benefit is equal for each type of expenditure, and adjusts the various taxes so that the marginal social cost or sacrifice per rupee of additional tax is equal for all types of taxes and persons, and also equal to the marginal social benefit of the expenditures. The objections to this theory have frequently been stated in the literature: It involves unjustifiable interpersonal comparisons of utility. Also, while the MSB = MSC rule has formal applicability, it is of little value as a policy tool since a market does not exist for most government services, and no good alternative method exists for determining costs and benefits.

The most interesting chapter of the book is an extension of the above "public finance principle" to the problem of federal finance where two or more levels of government are taxing and spending. The gist of this argument is found in Bhargava's earlier article in *The Economic Journal* for March 1953. Following the above logic and assuming some states of a federation to be poorer than others, he shows that welfare will not be maximized if both central and state governments independently apply the MSB = MSC rule. This follows since the richer states will reach the optimum taxation and expenditure at a lower level of sacrifice and benefit than will the poorer states. Thus, he argues, let each state follow the MSC = MSB rule, but to maximize welfare of the nation the central government should tax more and spend less in wealthy states as compared to poor ones. This analysis obviously rests on the questionable validity of the diminishing marginal utility of money, as well as upon interpersonal utility comparisons. The author takes the position that while the diminishing marginal utility of money cannot be proved, nevertheless when applied to large numbers it is less in error than other plausible hypotheses.

The present reviewer finds two objections to this presentation: (1) The author tries to build a scientific case for maximizing welfare through application of the "public finance principle." He would have been on more certain ground to have accepted the desirability of interpersonal and interregional income redistribution as an ethical value judgment well founded on Indian public opinion. (2) While mentioning the difficulties arising from his assumptions of interpersonal utility comparisons and the diminishing marginal utility of money, the author treats them so lightly that the student is likely to be unaware of the considerable controversy in the literature around these subjects. The authoritative mode of expression coupled with a lack of references to these controversies is likely to mislead the Indian student for whom in part this book is intended.

The remainder of the book is more descriptive and empirical. Several chapters deal with financial adjustments between the state and central governments, comparing Indian practices with those of other federal states. While showing historical trends in federal and state finances, the author has compiled valuable data on a comparable basis for the several states of India.

The beauty of this treatment is that statistics are given where needed, but the reader is not overwhelmed by a morass of detail. One section is devoted to a discussion of specific taxes, while four final chapters deal in a rather sketchy way with government expenditures and debt.

The whole work is presented in a concise and extremely cogent style which is a pleasure to read. The body of the book will certainly be a primary guide to the student of Indian finance. The fact that the whole work is built around a theoretical framework is a source of strength; however the content of the theory is open to serious objections.

Willis D. Weatherford

Swarthmore College

Natura ed effetti economici di un'imposta sulle società—Atti del I convegno di studi. (Milan: A. Giuffrè. 1955. Pp. xiv, 358. L. 2.000.)

The Italian government introduced a direct tax on corporations and other business entities, levied on both invested capital and income, in August 1954. The present volume contains opinions of leading Italian economists on this tax. These remarks were presented in May 1955 before the Italian chapter of the International Fiscal Association. Leading speakers were Celestino Arena, Giannino Parravicini and Aldo Scotto. Lamberto Dini comments on a bibliography on company taxes, citing mainly American authors. The other speakers, however, do not seem to be greatly influenced by American writers either in their ideas or their approach. The charm of the analysis is in its reliance on pure reason. Nowhere is there mention of the effect of this tax on specific industries or companies—although I for one would like to know how taxes affect the price and investment policy of a monopoly like Montecatini, or a company in the highly competitive motorscooter industry. I would also like to see figures placing the estimated "take" of this tax in relation to other taxes. Presumably, Italian economists do not have all this data at their disposal. Even if they did, they would probably reject it as deceptively plausible, preferring the appeal of logic.

The tax itself is probably a less important innovation in Italian fiscal policy than the recent personal tax reforms. It applies a rate of ¾ of 1 per cent on invested capital, in conjunction with 15 per cent applied to income in excess of 6 per cent of invested capital. Arena points to similarities to German, Swiss and American taxes. Comments by other speakers touch on various aspects of American and European company taxes. The general tone of the arguments is that, although it has been a long time since Seligman wrote on the subject, we still lack definitive conclusions about the economic effects of direct taxes, and that it is dangerous to take too much for granted. As to this specific tax, they express objections on technical grounds.

Interest in the volume itself does not lie in the importance of subject matter under discussion or in novelty of arguments used. It is helpful in enabling American economists to understand the approach of the new generation of Italian economists,. The meeting at which this discussion took place is also of historical importance in marking a step forward in the assertion of

the economic as against the purely legalistic approach which has dominated so much Italian public policy.

PETER WARREN

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International Economics

The United States Capital Position and the Structure of its Foreign Trade. By M. A. DIAB. (Amsterdam: North-Holland Publishing Co. 1956. Pp. 67. $2.75.)

Diab's study is the latest and by far the most comprehensive contribution to the discussion of Leontief's scarce-factor paradox.[1] The debate was started three years ago by Leontief's "Domestic Production and Foreign Trade: The American Capital Position Reexamined,"[2] in which he applied his input-output model to American foreign trade and found that, contrary to generally accepted belief, U. S. exports are, in general, labor-intensive and its imports, capital-intensive.

The first chapter of Diab's book offers a restatement of Ohlin's theory of variable proportions of the factors and international specialization, with emphasis on some of the limits of its applicability. The second chapter gives the highlights of Leontief's 1953 article. The third touches on the problem of estimating and computing the capital and labor coefficients of various industry groups. He singles out the capital coefficient of the agriculture and fishery section for scrutiny, partly because it is unduly high, and partly because, in view of the rather high percentage of this section in the dollar value of imports, this coefficient plays a significant role in the final result obtained. Diab succeeds in showing that Leontief's estimate of the capital coefficient of the agricultural and fishery section was too high. Although the revised calculation based on a lower figure still seems to bear out Leontief's conclusion, his point is well taken.[3]

In Chapter 4, Diab examines Leontief's hypothesis that one (man-year) unit of labor is about three times as productive in the United States as in other countries, and tries to verify the magnitude of this multiple. He uses Colin Clark's data of home production and of capital stock per head of working population, both in terms of Clark's international units, to fit the Douglas production function for each of the following countries: United States, Canada, Great Britain, Netherlands, France, Norway and Italy. It is found that

[1] For other contributions to the literature, see W. Leontief, "Factor Proportions and the Structure of American Trade: Further Theoretical and Empirical Analysis," *Rev. Econ. Stat.*, Nov. 1956, XXXVIII, 386, n. 2.

[2] *Proceedings* of the American Philosophical Society, Sept. 1953, XCVII, 332-49; reprinted in *Economia Internazionale,* 1954, VII, 9-38.

[3] In Leontief's second article, he pointed out that, in U. S. agriculture, most direct labor used is self-employed. This makes the labor-input coefficient in agriculture highly speculative. In two sections (C_3, and C_4) of Table I, labor and capital inputs are excluded from the final figures.

comparative capital intensity is higher in all these countries except Italy than in the United States. The result is unexpected, but, as the author points out, it depends on the "authenticity of Colin Clark's figures and whether Douglas' production function is the correct function for the countries studied" (p. 45) and on the assumption that one unit of capital is as productive in one country as in the other, despite differences in social and institutional environment and natural endowments. The numerical results, interesting as they are, are not directly relevant to the main thesis of Leontief because in Leontief's own words,

> It is the amount of capital and labor and natural resources which the U. S. would need to replace, by home production, the foreign competitive imports—rather than the quantities of these factors which the foreign countries actually use to produce such goods—which is relevant from the point of view of my argument (pp. 36-37).[4]

In his two concluding chapters, Diab makes several pertinent points. He observes that, aside from capital and labor, production functions are determined in a large measure by the gifts of nature of a country. He goes on to construct a simple model with Leontief's data to show that the capital coefficient is higher in nonmanufacturing than in manufacturing industries in the United States. This finding lends support to the view shared by the author and practically all other critics such as Ellsworth, Swerling and Buchanan that although United States imports may be capital-intensive, they seem more to reflect relative insufficiency of certain natural resources in the United States than to indicate a demand for goods that are highly capital intensive *per se*. His suggestions that, in calculating the capital coefficient, investment in physical plants as well as in technicians should be taken into account and that import contents of exports and export contents of imports are to be separated by using a more refined concept of "activity" instead of just merely exports and imports for the purpose of Leontief's study are worth noting.

To this reviewer, aside from the two main issues to which the author addresses himself, namely (1) the reliability of Leontief's figures, and (2) whether or not one should adopt Leontief's interpretation of "abundance" of American labor, there should first be the question of whether the input-output model based on fixed coefficient technologies is a good approximation to the realities of international trade on which the model is designed to throw light.[5] Diab is silent on this issue. In fact, he makes no effort to tie in critical contributions of other writers on the subject nor is any reference made to any of them. Such references would have enabled readers to gain a comprehensive picture of the problem involved. These remarks, however, do not in any way

[4] Some of the critics, *e.g.*, Ellsworth and Granick, seem to have missed this point in their arguments.

[5] Many earlier writers directed their criticisms towards the use of Leontief's model for such nonlinear economic phenomena as foreign trade. In the recent discussion, only one writer emphasizes this issue. See Stefan Valavanis-Vail "Leontief's Scarce Factor Paradox," *Jour. Pol. Econ.*, Dec. 1954, LXII, 523-28.

detract from the opinion of this reviewer that the author is competent as a practitioner in the trade and is resourceful and ingenious in making use of data to bring out his points. It is a valuable addition to the debate on Leontief's paradox.

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Business Organization; Managerial Economics; Marketing; Accounting

Our Floundering Fair Trade. By JOHN HARMS. (New York: Exposition Press. 1956. Pp. 141. $3.00.)

Criticizing both the proponents and opponents of "fair trade," *i.e.*, resale price maintenance, because both (p. 67) "accept the basic justice of the current economic-political order, the struggle for survival of the fittest with all the inequities of history and nature . . .," the author of this essay had already concluded that (p. 63) "there is no such evidence of justice, nor such help to the poor, oppressed little man, in Fair Trade price maintenance as the Fair Trade propaganda claims." In an abundance of such phrases the author makes clear that he has little regard for our economic system and finds the operation of resale price maintenance a feeble palliative indeed. He forthrightly declares his distrust of "Big Business," which in his opinion exploits the individual, makes shoddy merchandise, uses sharp practices at every turn, and employs wasteful advertising and selling in order to create monopolies. In contrast he admires the more "orderly" English and French systems and finds the logic of the national socialism of Hitler and Mussolini attractive, at least in terms of the manner in which they worked for the good of everybody!

In addition to this frame of reference Mr. Harms has brought to the task of analyzing resale price maintenance experience as a newspaper reporter, feature writer, editor, and business executive. He has attempted, with apparent sincerity, to present both sides of the "fair trade" controversy. To do so he has reviewed most of the important works in the field (those by qualified economists seem invariably to oppose the practice) and has interviewed leading officials of trade organizations devoted to furthering the cause of "fair trade." The first two chapters of the book make a more or less standard presentation of these arguments followed by a third chapter devoted to an elaboration of the writer's views concerning the injustice and materialism of our economic system.

Perhaps the most worth-while material of the volume is contained in chapters 4 to 6, which reveal the personal experiences that have led him to adopt his present conclusions. He had been an assistant controller of a large manufacturing organization whose founder was a leading proponent of "fair trade." In presenting copies of correspondence and reports, supplemented by data of other types, Harms discloses a pattern of what he deems to be double-dealing of the worst sort—the use of discriminatory discounts and resale

price maintenance to strengthen large firms and to dupe small retailers. In the seventh and final chapter the author provides a somewhat embittered summary of the significance of resale price maintenance to various types of institutions and to society generally. Clearly he believes that if properly enforced the practice would be desirable, but that in its present state it fails to soften competition as he thinks it should.

To conclude a review of this work without commenting upon its style of presentation would be a disservice to the prospective reader, although at first this reviewer despaired of doing so effectively, but then it was decided that by attempting to emulate Harms' mode of expression, however feebly, there might be conveyed to the reader some of the flavor of the volume, and with this in mind this concluding sentence has been constructed, with the intention of portraying the author's rather frustrating habit of embarking upon interminable verbal journeys—apparently without any planned itinerary—with the inevitable result that the reader, having passed over mountains of parenthetic statements and explored numberless explanatory clauses, arrives unexpectedly at a period with the feeling that he surely must have covered a great deal of ground, though, to be sure, he cannot quite remember the landscape at any particular spot, and so, if he wishes to understand the message (and by this point he may have become so fatigued as to have lost this ambition), he must retrace his steps more cautiously, carefully spotting landmarks and stowing them away in his memory, and at long last may arrive at the end, able to outline a map of the territory traversed, reasonably accurate in its major form, albeit still somewhat hazy with respect to its details.

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Research in Industrial Human Relations—A Critical Appraisal. Edited by CONRAD M. ARENSBERG, SOLOMON BARKIN, W. ELLISON CHALMERS, HAROLD L. WILENSKY, JAMES C. WORTHY, and BARBARA D. DENNIS. (New York: Harper & Bros. Pp. ix, 213. $3.50.)

This small book of varied authorship, with a forbidding title, should have a strong impact upon those who read thoughtfully and with a sense of facts. It is possible that this academic book may mark a new epoch in the history of American industry, quietly bringing to bear on the subject of industrial relations a new approach, just when Samuel Gompers' syndicalism is held to be decaying, and when Karl Marx's theory of the class struggle has been widely rejected as inadequate.

There is wisdom embedded in the comment of an old Tennesseean, in his explanation to his daughter of the meaning of the epic war between the states. "There is the North's side," he told her, "and there is the South's side, and then, there is the right side." To apply the formula to the field of human relations, there is the employer's side, and there is labor's side, and now there is the right side. This right side in industrial human relations as developed in the present book is fortified all the way through by the use of the rational method in dredging up facts, in making new generalizations out of these facts,

and in throwing into bas-relief the last two decades of the politics of industry, so as to disclose what a deep bite into tradition research in industrial human relations has made. "Elton Mayo, late professor of industrial research, Harvard, reinterpreted the nature of man." He declined to exclude the worker from "the promise of striving and success"; so Reinhard Bendix informs us. In fact, the spirit of this epochal record has been one of bold reshaping of thought and ideology in the labor-management field.

The contributors to this conservative-appearing symposium fall into groups: sociologists, or if you will, social philosophers; personnel directors of corporations; active union officials and union intellectuals, who have known the discipline of the shop and of advanced graduate work. These men, with their kinship to engineers and economists, are different from those concerned with industrial relations in the earlier days when naively innocent workers met naively innocent employers, neither group scarcely aware of their functions as arbitrators and negotiators.

Solomon Barkin, who has participated in every sphere of this broad enterprise—the academic, the union central office, the negotiation process, research and the labor school—declares: "Participation in management-controlled meetings or captive audiences is not democracy, no matter how simulated the forms may be." Barkin can be regarded as a representative of the advanced and wiser union labor position.

As one reads this book, he is impressed with the completeness of the exposition. The reader may well regret that so rich a vein of esoteric knowledge may be closed to many persons. It would be useful if this book could be made the basis for a more popular and generally accessible treatment of the subject which might nevertheless preserve the scholarship, the scientific approach, and the philosophy of the present book.

This reviewer has long regarded labor-management relations as the keystone of the industrial scheme in America. There is a hint of this point of view in the preface of the book: "Human relations in industry has become both the label of a group of studies of people at work, and the slogan of a movement of thought and action." This little volume may in time be regarded as the fruition of this generation's thought and experience, that is if America continues allegiance to the democratic process.

M. H. Hedges

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Industrial Organization; Government and Business; Industry Studies

Economic Concentration and the Monopoly Problem. By Edward S. Mason. (Cambridge: Harvard University Press. 1957. Pp. xvi, 411. $6.00.)

Of the nineteen essays comprising this volume, all but the first are reprints of articles the author has published over the past twenty years. The first essay, from which the volume derives its title, reviews a sampling of recent literature on the subject to which the four following essays in Part I repre-

sent the author's outstanding contributions. In a very general sense, or at least collaterally, this may be said to be the subject, too, of the five essays in Part II on wage-price relationships and labor monopoly, while the five in Part IV return to the same theme, with the emphasis on antitrust policy.

The four essays in Part III on "Raw Materials, [National] Security, and Economic Growth," though tangential to the main theme, represent an illuminating contribution to a problem which will interest practically every student of industrial concentration and monopoly problems. Their inclusion in the present volume is fully justified, and the author's apology (p. 9) for the "digression" might better have been saved, in the reviewer's judgment, for the republication of two or three of the essays focused on the main problem. For example, the casual treatment of "Competition, Price Policy, and High-Level Stability" (Ch. 8) and of "Workable Competition Versus Workable Monopoly" (Ch. 18) makes them dispensable; their elimination, moreover, along with "The New Competition" (Ch. 17) would have helped to reduce the repetitions that, naturally, abound in a volume of this kind.

A detailed review and commentary on each of these essays is hardly called for here. An attempt to trace the development of the author's thought, changes in his outlook, might be appropriate. Unfortunately, there appears little evidence of such development. The tone and thrust of the later essays are virtually indistinguishable from those of twenty years ago. Throughout, a principal animus appears to be to bridge the alleged gap between law and economics. By and large, economic concentration poses no serious threat to public welfare. The main problem is to redress the alleged failure of the law to take adequate account of economists' conceptions of market control and of "efficiency" in the utilization of resources (pp. 342-44; 366; 9-10). In these circumstances a brief synopsis and critique of the author's contribution to the theory and practice of antitrust regulation may be in order.

Essentially, Professor Mason's position may fairly be characterized as eclectic. His thought fits neatly into a quasi-Hegelian dialectic. Always there are sharp opposites to be differentiated and then synthesized by a deft balancing act of the intrepid (and inveterate) tightrope-walker. The perfect poise is the solution: lean neither to the right nor to the left and all will go well—one cannot fall—either into the feckless fatuity of trust-busting or into the grasping clutches of monopoly. (Of course, as the saying goes, if you like that sort of thing, that's the sort of thing you like. It must be conceded that in some situations, or dealing with certain subjects, such an approach has much to recommend it. In these essays it shows to best advantage, in the reviewer's judgment, in the one—Chapter 5—analyzing Schumpeter's views on monopoly.)

Starting with the well-known essay on "Monopoly in Law and Economics," we have the dialectical distinction between, on the one hand, "an antiquated and illogical" legal concept (p. 346) based on a static (orthodox) economic concept of monopoly as the opposite of free competition, which in judicial application focused attention solely on "restriction of competition" (pp. 338-342), and, on the other hand, the "modern" concept of monopoly as the

"market control" implicit in fewness of sellers, product differentiation, etc. (pp. 333-35). These alleged opposites can be, should be, must be reconciled or fused, by intensive and extensive investigation of the price, output, investment, research and innovation tendencies, or characteristic performances, associated with various degrees of "market control," or patterns of market structure (pp. 345-46), thereby providing realistic criteria for distinguishing innocuous from illicit transactions, constructions, or arrangements, in a word, for separating the sheep from the goats.

The truth is that the basic distinction thus summarily sketched is quite illusory. The distinction between "market control" and "restriction of competition" is not only elusive, it is nonexistent. All market control is a matter of degree, and in Mason's usage the phrase evidently signifies distance from pure monopoly. All restriction of competition is a matter of degree, and as used by Mason the phrase evidently connotes distance from pure competition. Whether for a single firm, or for a group of firms, the extent of market control exercised is precisely the extent to which competition is restricted. The two phrases are simply descriptions of the same phenomenon, or situation, looked at from different angles, in fact, from opposite sides. The position of an object suspended in a body of water may be described as, say, three feet below the surface or four feet above the bottom. Just as there is no good reason a priori, for preferring one description to the other, both being correct, so nothing is gained by referring to a certain business situation as representing a certain degree of market control or a certain extent of restriction of competition.

Whether this purely verbal difference (substantive equivalence) holds when the business situation in question is being examined by an economist intent on analyzing its implications for pricing, investment rate, etc., may be open to question, but it certainly holds for a judge called upon to determine the consonance of a given business situation with public policy. When Mason states (p. 334) that "Restriction of competition is the legal content of monopoly," he overlooks that this was precisely the view of Justice Holmes as expressed most clearly in his dissenting opinion in the *Northern Securities* case. In the limited, inaccurate sense that only collusion or exclusion (and not amalgamation) amounts to an antitrust offense, such a description of the law did not represent the majority view, then or subsequently. And when Mason adds that "control of the market is its economic substance," and expressly declares that this is "by no means equivalent" to restriction of competition, this reviewer, for one, is reminded that definition is "the beginning of wisdom."

All that need be said here is that, in so far as the phrase "restriction of competition" is limited to collusion and exclusion, and in so far as the phrase "market control" is taken to embrace certain nebulous "monopoly elements" associated with Chamberlinian theory (such as, *e.g.*, product differentiation), their nonequivalence may be granted. But the law is concerned with concrete business practice, not abstract economic theory. That antitrust should ever define market control in a Pickwickian sense, *i.e.*, in any other sense than

restraint of trade, this reviewer at least would dispute. In sum, in his view, every "restraint of trade" represents an "attempt to monopolize," and every "attempt to monopolize" restrains trade. (See "Comment," *Am. Econ. Rev.*, Papers and Proceedings, Mar. 1949, XXXVIII, 204-08.)

It would be quibbling to contend that by "market control" is meant, not dominance, or government, or manipulation, of the relevant market, but simply share of that market. *Every* seller has a share of the market. That is a status, or condition, he cannot escape if he sells at all. It may be contended, of course, that by market control is meant only a big share of the market. The answer to that contention brings us to the very crux of the issue. The answer is not a request to define a "big share," as Judge Hand, befuddled by the economic critics of antitrust, mistakenly assumed. Wandering down that road leads nowhere, *i.e.*, leads only into a morass. Whether it be 90, 60, or 30 per cent the answer could provide no rule of universal application, as Mason recognizes (p. 360, *et passim*). Furthermore, it could provide no appropriate guide to decision even in a particular case.

With or without merger, it is clear that a company may by unquestionably fair methods gain control of a big share of the market, however "big" is defined. A company may even become in this way a single seller for a time, achieving thus a *condition* of economic monopoly—as Ford did in the low-priced car market during certain years in the period 1910-1925.[1] Mason, unlike some of the more extreme critics, would condemn unqualifiedly an interpretation of antitrust that extended its prohibition to such a situation. Yet that is precisely the most likely outcome of a rule that focuses on "market power," "market control," or whatever other phrase may be adopted to describe a *condition* of economic monopoly, near-monopoly, oligopoly, or even monopolistic competition. For once that central focus on market structure is accepted, there is no alternative, if the anomaly of condemning the innocent along with the guilty (the upright competitor along with the downright monopolist) is to be avoided, to judging the lawfulness of a large enterprise by "results," "business performance," or "efficiency." For that task, courts are not fitted. Plainly, moreover, Congress can never have contemplated making judges economic arbiters.

Mason is quite well aware of this dilemma. He was aware of it in 1937 (pp. 344, 346, 349); and in 1949 (pp. 360-62, 367-68). To his credit, he appears to have become even more keenly aware of it in 1956: "An attempt to push enquiry into effects very far is clearly an invitation to non-enforcement" (p. 394; see, also, pp. 395-96). Nevertheless, he still adheres to the view that a *condition* (possession) of "market power" should be, and more and more in judicial application is actually becoming, the primary criterion of antitrust offense (pp. 399-401).

The fact is, Mason's assertion to the contrary notwithstanding, that the courts have all along recognized (1) that control of the market and restriction of competition are simply different sides of the same coin, and (2) since

[1] How prevalent are instances of this kind is an open question; it may certainly be doubted that they are very numerous.

1911 at least, that this "coin" provides, by itself, no reliable "measure of value" (*i.e.*, test of validity under the antitrust laws) of any business transaction, practice, or organization.[2] Its inadequacy as a criterion of lawfulness was, in fact, the avowed reason for introducing the "rule of reason."

It is the nature of this inadequacy which escapes Mason and many other critics[3] of antitrust in judicial application. It is inadequate because it focuses the issue on the pattern of market structure, the possession of market power, and ignores the animus lying behind the development of that structural pattern. Intent provides an appropriate *primary* criterion of compliance with or violation of the law, because of the nature of antitrust law itself. The Sherman Act prescribes a rule of *conduct*. It does not condemn monopoly; it prohibits monopolizing. It penalizes a certain course of market conduct, not a market position (possession of market power), whether it be that of a single seller or that of one among a "few." As in every branch of criminal law and in much of the law of torts, intent is a crucial factor. Fatal shooting of another person is not murder; it must be premeditated. Acquisition of "market control" (a large share of the available business) is not monopolizing; it must be the fulfillment of a deliberate design to throttle competition.

The essential point here is that judging a business structure, or market condition, on the basis primarily of the intent of those responsible for it is a task within judicial competence. It is the sort of judgment courts are called upon to make, day in and day out. *Per contra*, judges are not equipped, nor has Congress provided a standard, for testing the lawfulness of business "constructions," or behavior, by the "efficiency" of their performance (either in the allocation or in the administration of productive resources).

It is sometimes objected that the test of intent is (a) too subjective and (b) too indefinite for practical use. As for the former objection, no one familiar with the law will suppose it necessitates "probing into a man's mind." Intent, in law, is always an inference drawn from *conduct*. Personal motives are irrelevant. It is the pattern of conduct in a specific set of circumstances that reveals the intent, according to common experience, on which turns the issue of whether an offense has been committed. As for the latter objection, while the criterion of intent provides no certainty regarding the scope of the antitrust prohibition, neither does any other test, certainly not the proposed test of "market control," or power to influence price and output in the relevant market (as Mason concedes, p. 386).

The essential difference between the reviewer and the author on this score can be stated very briefly. The author, so it appears to the reviewer, would

[2] Mason's subsequent (1949) recantation (p. 388) of the ill-founded charge that the courts had, in effect, ignored "control of the market" as an element in antitrust offenses is commendable, as far as it goes. But it does not go far enough. He does not withdraw or qualify his basic contention that, in the light of monopolistic competition theory, the courts *should* have made the pattern of market structure a primary, even if not exclusive, criterion in judging the lawfulness of mergers, supplementing it with business performance tests.

[3] But not all of them. See, *e.g.*, J. B. Dirlam and A. E. Kahn, *Fair Competition*, (Ithaca, 1954), pp. 28, 88, *et passim*.

have concentrated business power tested primarily by reference to its "performance" record (innovations, price policy, profit, etc.). A "good" performance merits a decree of "no cause of action." The reviewer, on the other hand, is prepared to acquiesce in what he regards as an established legal doctrine: that both the circumstances in which concentrated business power originated and the mode of its exercise are subject to examination simply as a clue to the intent of those responsible. If observed *conduct* reveals an intent to monopolize (or restrain trade), an offense is proven and not otherwise. To some, the difference between these two views may seem slight. To the reviewer, the difference is radical.

From the first *Swift* case (1906), at least, to the present, no ruling of the Supreme Court, the reviewer believes, has been inconsistent with his interpretation.[4] Though some lower court rulings and the dicta in a single Supreme Court opinion (Griffith)[5] point in another direction, in the light of the *National Lead,* the *Columbia Steel,* and the *Cellophane* cases, the judicial record lends little support to Mason's manifestly wish-fathered conclusion (p. 358) that "the courts have moved a substantial distance in the direction of accepting the presence or absence of the *market conditions* associated with the notion of workable competition as appropriate tests" (emphasis supplied).

While the foregoing comments indicate the weaknesses and errors, in the reviewer's judgment, in Mason's basic position on antitrust policy, they are not designed, and should not be taken, to minimize his contributions to the literature. After all, antitrust policy has never been static and, we may hope, will never be fitted into a rigid mold. Few economists have helped more than Mason to sharpen the issues and thereby prevent antitrust law from becoming ossified, an incubus on economic development.

By way of addendum, the reviewer feels bound to call attention to the inexcusably poor proof-reading on this volume. A foreword by J. K. Galbraith notes that the book "celebrates a double anniversary." It is the hundredth volume in the Harvard Economic Studies series, and its publication marks

[4] We are not contending, of course, that every justice (much less every judge) has held an identical view of what constitutes proof of intent to monopolize (or restrain trade, which is only a different expression for the same thing), or even that every justice has regarded intent as the crucial factor. The contention is only that a majority of the court has consistently, and with few exceptions explicitly, based its decisions, in final analysis, on this criterion.

[5] Where it is stated (334 U. S., 107), "so it is that monopoly power, *whether lawfully or unlawfully acquired,* may itself constitute an evil and stand condemned under Section 2 even though it remains unexercised. For Section 2 of the Act is aimed, *inter alia,* at the acquisition or retention of market control." (Emphasis supplied.) With this exposition of the law presumably Mason would agree. Yet in fact the trend line of decision, before and since 1948, repudiates it.

That the quoted passage was a slip of the tongue (a failing from which even Justice Douglas is not immune) is pretty clearly indicated by a later passage *in the same paragraph.* Backing away from such a novel position, even though not acknowledging the *volte-face,* the not-always-collected and composed Justice declared: "Hence the existence of power 'to exclude competition when it is desired to do so' is itself a violation of Section 2, *provided it is coupled with the purpose or intent to exercise that power*" (emphasis supplied).

the semicentennial of the founding of that notable series. One would have thought that, in these circumstances, the Harvard University Press would have taken special care with the proof-reading. Instead, to the great irritation of one reader at least, no less than 15 typographical errors were encountered in the first 50 pages. After that, not for want of instances but for want of patience, he gave up counting, though he did stop to note a concentration of three on four pages (175-78). The more's the pity that a book of this kind, on an occasion of this kind, should be marred by such blemishes, while university presses pride themselves on their "superior" standards in this respect.

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The Agricultural Implement Industry in Canada: A Study of Competition. By W. G. PHILLIPS. (Toronto: University of Toronto Press. 1956. Pp. xi, 208. $4.50.)

This study of competition in one of Canada's oldest oligopolistic industries should interest students of industrial structure and behavior on both sides of the border. For the Canadian and United States agricultural implement industries have close institutional and economic ties: The leading American firms operate in both markets, and since 1935 low tariff walls have permitted easy flow of trade across the border. In recent years about half of Canada's production has been sold in the United States and about three-fourths of the implements bought by Canadians have been imported.

Study of competitive behavior in an industry composed entirely of firms over one hundred years old necessarily requires some history. Phillips bases his historical approach on the "hypothesis that competitive patterns are not generally accidental but are rooted in a variety of influences which condition an industry's growth."

The first seven chapters—comprising well over half of the text—reflect this approach. In them he meticulously traces many of the early developments of the industry in Canada and the United States, the permanent changes in industrial structure wrought by the great merger movement, the industry's experience during war and depressions, the Canadian industry's struggle, initial success and ultimate failure in getting tariff protection, the changing technology of the industry, and many other of its historical aspects. Students of industrial structure, organization, and history will find much of this discussion interesting and enlightening.

Of the remaining four chapters which deal more directly with the competitive behavior of this industry, two are devoted to price competition and two to nonprice competition.

Of price competition, Phillips concludes that there really has been little of it. Notable exceptions were the "harvester wars" of the 1890's and the tractor wars set off by Ford's aggressive price-slashing policies after the first world war. The latter experience must have left a memorable impression on the industry as to the inadvisability of using price competition as a device for

cutting into the industry leader's sales. In spite of drastic price cuts—Fordsons were selling for $395 in 1923—Ford was unsuccessful in challenging International Harvester's dominant position in the industry. After abandoning tractor production in 1928, Henry Ford characteristically described the whole misadventure as an experiment: He simply had been "trying to find out how low the price might be at which farmers would buy tractors in quantities equivalent to automobiles."

Phillips attributes the lack of price competition in this industry to four factors: its structure of few firms, high income elasticity of demand for implements, their low price elasticity of demand, and rigid overhead costs (p. 118). While these factors quite adequately explain why prices tend to be rigid in this industry, the problem of understanding how the actual level of prices is established is a more difficult one. And it is a problem Phillips' evidence and analysis never permit him to answer adequately. He says the actual level of prices is determined through a price leadership policy. But he never satisfactorily explains the character of the price leadership system in this industry. He does not explain what makes a firm a price leader and what kind of leader it is; that is, is it a dominant-firm price leader, is it of the competitive or monopolistic "barometric" variety, or is it one of the other hypothetical types?[1] Phillips' discussion on price leadership seems to assume that we already know what it really is his task to explain.

Phillips' two chapters on nonprice competition deal with competition in distribution and credit extension, of which, in contrast to price competition in implements, there has been a considerable amount. Competition in distribution has been "mainly a matter of exerting sales pressure on retail sales." Before and up to the second world war this resulted in considerable excess distributive capacity as firms tried to set up dealers in every hamlet. But since the war this trend has been reversed. Competition in credit extension was keenest during the 1920's. And though less important today because of government aid in financing farmers, the credit policies of implement firms can still be strategic weapons in the battle for greater sales.

The discussion of nonprice competition seems quite adequate as far as it goes. But Phillips investigates only two dimensions of nonprice competition; he completely ignores what well may be the most important dimension today—the apparently continuing effort of implement dealers to differentiate their products. In his discussion of price uniformity, Phillips says that since the 1930's it is difficult to know whether prices are uniform or not because implements are becoming increasingly less standardized. But he says nothing of the causes and significance of this trend toward product differentiation. It seems that here as in many other onetime standardized industries, the departure from standardization is a conscious part of the firms' competitive strategies. Some economists interpret such strategy as a desire to avoid competition, others as a desire to better one's rivals. But in either case, in an industry of few firms it may well be the most effective and socially desirable

[1] See, for example, J. W. Markham, "The Nature and Significance of Price Leadership," *Am. Econ. Rev.*, Dec. 1951, XLI, 891.

form of competition permitted by modern industrial structure and technology. Therefore such a potentially important dimension of competition should be analyzed in an empirical study of competition.

I am prompted to make a final comment relative to the scope of this study. It seems to me that anyone making a comprehensive analysis of an industry's pricing behavior owes his readers some pronouncement as to *his* conclusions concerning its competitive efficacy. Certainly he is best suited to marshal the evidence needed to determine whether, assuming particular criteria for measuring the effectiveness of competition, the industry is performing satisfactorily. Phillips does not do this. He is content to explain how the industry operates, presumably leaving it up to the reader to infer whether it operates well enough.

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T.V.A.: The First Twenty Years. Edited by ROSCOE G. MARTIN. (University, Alabama: University of Alabama Press. Knoxville: University of Tennessee Press. 1956. Pp. xiii, 282. $4.50.)

In 1953 the staff of the Tennessee Valley Authority, in response to an invitation from the Florida State University, presented a course in public administration at that institution. With the exception of the introduction and the closing chapter, the book being reviewed is a compilation of the lectures in that course, rearranged and condensed. Though the title might seem to imply that the book is primarily a chronology of the development of the T.V.A., it is rather an attempt to analyze the organization and operation of the T.V.A. as of 1953. Inasmuch as the T.V.A.'s first two decades are important only as they promote the reader's understanding of this analysis, the book might be more descriptively titled *T.V.A. after the First Twenty Years.* The reason for the three-and-a-half-year delay in publishing the material is not clear but it is stated in the introduction that developments subsequent to 1953 require little modification of the story.

The book begins with an essay by Gordon Clapp which indicates the general environment into which the T.V.A. moved, the broad characteristics of the T.V.A., and its "workways." Following this are four sections on the major aspects of the T.V.A.'s total operation. Legal foundations and administrative and financial structures and procedures are set forth first. This is followed by a section on the T.V.A.'s physical development programs for the Valley with discussion of flood control, navigation, power, and land management procedures. The third section is concerned with social and economic development and considers health, water pollution, recreation, but also, rather strangely since the problems involved appear to be primarily technical, fertilizers, munitions, and forestry. The final portion of the book is less an examination of the T.V.A. than of its implications to the region and the nation.

The book is admittedly not impartial. This is understandable since the authors themselves have spent many years developing the operations and

organization which they describe and for the most part this does not detract from the usefulness of the book. So long as the material is concerned with *how* the T.V.A. works, partiality is no real handicap. Nor is it particularly troublesome when consideration is given to the broader implications of the T.V.A. Lack of impartiality is less satisfactory when direct justification of the T.V.A. or of its programs is involved. The partial observer is apt to rest his case before he has probed deeply enough to satisfy others not similarly persuaded. There are a few pages devoted to such argumentation and they seem unnecessary to the general analysis of the way the Authority is organized and its programs operated.

It may be fairly said, however, that the general tone and level of the book leave the impression that it is an accurate, systematic representation of the form and operation of the T.V.A. The description of how the T.V.A. has been molded to fit the physical, political, and social environment of the Tennessee Valley is fairly detailed and is then woven into a larger pattern. The authors are conscious of the role of the T.V.A. as a prototype in the broad sense, its virtues in this regard being not its particular form but rather its flexibility and organizational philosophy which together have permitted adaptation to meet the needs of the particular region which it serves. In common with many other works on the Authority, it is suggested that these virtues may be useful to other agencies serving other regions. What is unique to the work being reviewed is that it tries systematically to demonstrate, or at least to describe, the manner in which these distinctive qualities are utilized by the various organizational and operational divisions of the T.V.A.

The degree to which the T.V.A. acts as a research center and as an innovative institution for the region is also stressed. In all its subsidiary and in some of its major projects, the T.V.A. has either been an innovator or has tried to provide through research the impetus and information for innovation to private, cooperative, or other public agencies. Thus, the role of the T.V.A. in sowing the seeds of economic development is evident. Its effectiveness in this respect, however, has been due to its capacity to function efficiently internally and to elicit the help of the people and governments of the area. This, the reader is reminded, rests upon T.V.A.'s methods which emphasize cooperation.

Less to the credit of the book is a degree of repetitiveness. The different chapters are largely self-contained and each author evidently felt the need of presenting substantial background material. Because of the close relationship of the different T.V.A. programs, this results in restatements of substantially the same information several times. Could this have been eliminated the readability of the book would have been enhanced.

The most important criticism the reviewer has is the very limited number of footnote references and the lack of bibliography. There are only 27 footnotes in the entire volume, 13 of which are found in one chapter and only 7 of which follow the first quarter of the book. There are 9 references to works other than governmental publications, such as the Congressional Record, statutes,

and court records. And some of these 9 are simply citations of the sources of quotations found in the text. The significance of this criticism is found in the nature of the book itself. It does not exhaust the subject of T.V.A. operation and organization. It could not do so in such short space. For the reader with a serious interest in the T.V.A. the book alone is not sufficient to obtain an understanding of many of the T.V.A. programs, but it could have offered guidance beyond the textual material between its own covers.

Aside from these criticisms the book has much merit. For a work fathered by so many, it is of surprisingly high and even quality. And its systematic survey of the various operations of the T.V.A. provides a rather detailed and comprehensive picture of the way in which the agency functions.

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Baking In America. Vol. I, *Economic Development.* By WILLIAM G. PANSCHAR. Vol. II, *Market Organization and Competition.* By CHARLES C. SLATER. (Evanston: Northwestern University Press. 1956. Pp. xvi, 261; xviii. 458.)

In these two volumes Panschar and Slater analyze (respectively) the evolution and present-day economic structure of the American baking industry. The two subtitles, denoting as they do the essential division of labor, fail to connote the similarity in orientation, which is better expressed by applying Slater's subtitle "Market Organization and Competition" to both volumes. This accords with the first major purpose stated by Panschar—"to show how, why, and when the market structure and competitive pattern in the industry evolved." His effort to fulfill this purpose focuses attention upon the major conditioning factors; in the main the two perpetual "givens" of static analysis, "the state of the arts" and "consumer tastes and preferences." The development of baking technology (together with assimilation of another technological development, the motor truck) and the decline in home baking were the complementary, but not altogether coincident, conditioning factors which ultimately gave rise (after 1900) to an "incredible growth . . . that raised the industry to first place among food processors and made it a giant on the American industrial scene." Panschar describes the implicit struggle for ascendancy among firms and the inevitable consolidation and merger phase.

Panschar's first purpose would have been better served had he shown less reluctance to assign relative importance to the major conditioning factors. The reader may glean an impression that the *sine qua non* of bakery growth was the housewife's readiness to avert a formidable kitchen chore—that none but the most inept or languid of industries could have defaulted technologically in the face of such opportunity. But the impression is weakened by the emphasis accorded other factors. That bakers did for their own industry "what Ford had done for the automobile industry," I altogether doubt: that Ford did as much for the baking industry as did bakers I would rather con-

tend. But I think Panschar would share the same contention and that his otherwise careful evaluation is only slightly marred by the occasional inapt cliché.

Panschar's "second purpose was to get at the very heart of the process of economic change in the development of a modern industry." The very heart of the process of economic change is not easily gotten at. At best, Panschar has savored one of the leaf-scales from this artichoke: the heart he has not encountered.

The Slater volume belongs in the respectable company of studies of such industries as petroleum, rayon, and cigarettes, after which this analysis has been frankly modelled. The implications of market structure for the competitive process are sought by Slater, who then sets his empirical findings against these implications. His orientation in this assessment is toward "workable competition," rather than the more doctrinaire criteria, which he deems operationally limited. His conclusion that the baking industry is essentially competitive is offered as an interpretation rather than an empirical finding. But it is an interpretation which is sensibly argued and which receives impressive support from the data he has collected. His analyses of the relation between cost behavior and the competitive process and the relation between profit rates and various manifestations of the struggle for market position yield some interesting results. A marked inverse correlation between profit rates and promotion expenditures is perhaps the most significant of his statistical findings.

The "vertical" competition to which both Panschar and Slater refer, and which emanates, so far as bakers are concerned, from chain stores, frozen food processors, and flour mills (with their prepared baking mixes) deserves the increasing attention which it is enjoying. The salutary effects of this phenomenon, whether it is better labeled "countervailing power" or "vertical" competition in particular manifestations, are scarcely open to question. Accordingly, I have some misgivings about Slater's otherwise impressive argument that the baking industry is competitive when he calls attention to its demonstrated vulnerability to "vertical" competition. If vertical encroachment upon an industry, once it has become a *fait accompli,* is counted a contribution to the industry's competitiveness; then surely vulnerability to such encroachment indicates some lack of competitiveness. The conceptual difficulty lies in the fact that once we abandon the one-dimensional (price) view of competition we are confronted by competition in several dimensions, including the "vertical." Neither cross-elasticity and entry analysis, nor the more prosaic approach represented in these volumes, answers the questions which emerged when this particular floodgate was opened. But these books, especially the Slater volume, extend the area over which the issues are better delineated.

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Principles of Transportation. By FRANK H. MOSSMAN and NEWTON MORTON. (New York: Ronald Press. 1957. Pp. vi, 510. $6.50.)

This is a transportation text for the beginning student. It is also an excellent reference work for the general economist interested in the history of transportation regulation. The first three sections deal with the economics of transportation, the history of transport development and regulation, and the theory and practice underlying the rate structures; the next two, with the internal organization of transport firms and selected current problems facing the carriers; the last section deals with current transport policy and contains the 1955 report of the Presidential Advisory Committee on Transportation Policy and Organization.

The section on internal organization of the carriers is disappointing. The material is presented through a discussion of the operating departments of a typical carrier. It gives little insight into the management problems facing either the growing or declining sectors of the industry. Presumably it replaces more familiar material on capitalization, financial structure, and rates of return, which was used in earlier texts to convey an idea of the internal problems the carriers faced. Whether this change of emphasis has been successful will be up to the users of the book to decide. If the student is already prepared in problems of corporation finance and problems of regulatory valuation, this gap may not be serious.

In line with current developments in the industry, the book places more emphasis on the history and problems of newer agencies of transportation than appears in earlier texts. There are very good sections on the regulatory problems posed by highway motor transport and on the legislative and administrative attempts to cope with these. However, these early chapters are marred by the reticence of the authors in giving their personal judgments. This is unfortunate. By letting the developments speak for themselves they frequently give the impression that changes which have occurred in regulatory practice and law are both inevitable and desirable. They do not contradict this impression in later chapters on transport policy.

Frequent quotations from both Congressional and Interstate Commerce Commission reports give the impression that consistency in applying regulation to road and rail transport is the most important consideration the legislator should have in mind. Thus, we are treated without serious criticism to the following statements quoted from various reports:

> Unrestrained competition is incompatible with the objective of co-ordination under regulation and is not to be considered as a solution. (p. 77)
> Federal regulation of motor vehicles operating on the public highways in interstate commerce is desirable in the public interest. (p. 77)
> Motor truck operations threatened to change our transportation rate structure from the long-adhered-to principle of value-of-service to a cost-of-service principle. (p. 80)

There is little question that an unregulated competitive motor transport industry would set charges conforming fairly closely to a cost-of-service basis.

Why such a result is undesirable is never made clear in this volume. The authors occasionally mention the national defense needs of the nation without ever indicating that such needs imply the maintenance of overcapacity in transport or the protection of rail traffic against cost-of-service pricing by the trucks. They do indicate that the public utility character of rail operation and the public subsidization of highway maintenance obligate the regulatory agency to protect the earning capacity of the rails. But does this necessarily imply the extension of regulation to competitive sectors of the economy? Is regulation the only method of limiting the scope of rail operation to those commodities and distances which will pay the cost of rail operation and still find the rail more economical than the highway?

The authors hint at one point (p. 432) that the regulation of trucks is necessary because the trucks would never survive a rate battle with the rails. Supposedly the rails can set rates below the cost-of-service to the trucks and still make a contribution to their indirect expenses. It is difficult to believe that the rails could do this on any substantial amount of the business presently handled by trucks, or that they could operate profitably at a set of rates which would drive the trucks out of business. In the past, the rails have had, and have ignored, the option of cutting rates on the traffic the trucks handled. They have chosen instead to seek higher rates on the traffic left to them. I emphasize this point because it seems to be the major weakness in the author's presentation of a crucial problem. The entire problem of coordination has not yet been settled. The authors' contribution here has been to provide a very thorough history of the problem with little guidance to the student as to where a proper solution might lie.

I have picked out for comment one area of weakness in a large and thorough piece of work. My criticisms are not meant to detract from the high merit of this text. The chapters dealing with the history and development of regulation provide a real contribution for students of this subject.

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The Economics of Nuclear Power. Edited by J. Guéron, J. A. Lane, I. R. Maxwell, and J. R. Menke. (New York: McGraw-Hill. 1957. Pp. xii, 513. $17.00.)

This book consists, except for five articles, of reprints of about 40 articles, or parts thereof, which were presented at the Geneva International Conference on the Peaceful Uses of Atomic Energy in August 1955. The more than 1,000 articles presented at this conference were published by the United Nations last year in 16 volumes, at about $10.00 per volume. The extent of the reprint character of *The Economics of Nuclear Power* is not disclosed. Half to two-thirds of the book are writings generally interesting or useful to economists—requirements and supply estimates, comparative costs, etc. The remainder consists of engineering articles concerned with the physics and chemistry of nuclear reactions, and articles concerned with public health problems from use of power reactors and radioactive materials. Some useful

Geneva economics articles—*e.g.*, on individual country energy supply and demand—have been omitted. In addition some of the better Geneva economics articles have had their beginnings and/or ends cut off; I have not found the outcome of the major Procrustean surgery to be an improvement. Volume 1 of the United Nations set (above), about 500 double-size pages, contains most of the original Geneva articles of interest to economists. In qualitative and quantitative terms it is an economic analysis performance significantly superior to the McGraw-Hill volume.

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Land Economics; Agricultural Economics; Economic Geography; Housing

The Agricultural Commodity Programs: Two Decades of Experience. By MURRAY R. BENEDICT and OSCAR C. STINE. (New York: Twentieth Century Fund. 1956. Pp. xliii, 510. $5.00.)

This is the third and last volume in a recent series of studies of agricultural policy principally by Professor Benedict under the auspices of the Twentieth Century Fund. It is a study of the price-influencing programs of the U.S. government, by principal crops and classes of livestock and livestock products, 1933 to 1955, including ceilings as well as supports. This experience is analyzed in 11 chapters, with a considerable number of commodities handled together, evidently according to similarities in markets (wheat, rye and rice); interrelations between commodities—coarse grains (feed) and livestock; or similarities of price-influencing procedures used (butter, cheese, poultry and eggs). Six commodities are treated in separate chapters: cotton, tobacco, sugar, wool, potatoes and fluid milk.

The treatment of each commodity is historical and stands by itself. Each account, generally speaking, gives a brief record of the legislative authority and administrative procedure relevant to that commodity, with a fairly detailed account of the production, prices, relevant parity price levels, direct costs of the program, etc. This is basically a record of what has been done—a report of operations of the programs—and it is a record such as can be written only by people who know these operations from the "inside." The volume draws heavily upon hundreds of technical analyses. The basic draft of three and one-half of the chapters was done by well-known economists other than the authors. Mr. Stine and his assistant are credited with the first draft in something more than half the chapters.

Taken as a whole this is a massive study in contemporary economic history, heavily weighted with quantitative reporting. There are 51 major textual tables, mostly analytical, showing such items as per cent of the total marketings covered by the program; proportion of grower income from government payments; direct costs of the program, etc. In addition there are some 40 footnote tabulations. No charts were used. These characteristics

make the book slow reading, but the record is there—and a very complex record it is.

Administrative procedures and innovations are discussed in considerable detail. The chapter on fluid milk gives a brief outline of the essentials of federal marketing orders; one-fourth of all fluid milk delivered to plants is delivered in the 58 federally regulated fluid-milk markets. The general issues in the defining of interstate commerce and the significance of sanitary regulations are noted. The introduction of minimum labor standards for sugar production in the Agricultural Adjustment Act is explained (p. 294 ff). The chapter on fruit and vegetables market agreements gives a good account of the nature of marketing agreements as well as tabulations of the 100 or more federal marketing agreements which have been instituted since 1933. The view taken is that very little is known about the actual consequence of these agreements, most of which have been fairly short lived.

The book as a whole is factual reporting rather than evaluative. The interpretative and critical comments are presented largely in the context of discussions of operations. For example, regarding cotton, "If the objective was to stabilize prices and incomes, the greatest mistake in this period was in the program relating to the 1937 plantings" (p. 23). "Again the prospective demand for eggs was not correctly appraised [1944]. There was some reduction in the amount of pork available and civilian egg consumption increased" (p. 271). The principal discussion of production payments *vs.* commodity buying as means of farm-income support is a part of the chapter on wool. A general summary is presented as a 43 page introductory chapter. But for general perspective on the whole subject of commodity price support programs, those not particularly familiar with agricultural programs will be well advised to read Chapters 10 and 11 of the second volume in this series, *Can We Solve the Farm Problem?* The three volumes in this series are closely interrelated.

KENNETH H. PARSONS

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The Australian Wheat-Growing Industry, 1788-1948. By EDGARS DUNSDORFS. (Melbourne: University Press. New York: Cambridge University Press. 1956. Pp. vii, 547. $10.00.)

To economists interested in economic development, this account of the establishment and growth of the Australian wheat industry will be both fascinating and illuminating. It is a story of the development of the major agricultural sector of one of the world's chief agricultural exporting countries—a country transformed from a primitive, isolated, British penal colony into a great, free nation with a high level of living. In Professor Dunsdorfs' book one finds a substantial record of the changing economic incentives and handicaps to agricultural development in Australia, of the stimulating and restrictive roles played by the several governments concerned, of the changes in farming techniques that took place, and of the remarkable agricultural-pastoral expansion that occurred over a century and a half.

Dunsdorfs relies on two different methods of analysis—historical and

statistical. The results are not interwoven, but appear in separate sections of the study. Part I, which covers roughly two-thirds of the text, is a straightforward, illuminating economic history of six successive stages of development, designated as: (1) foundations of the wheat industry, 1788-95; (2) establishment of a wheat market, 1793-1824; (3) insufficient expansion, 1825-55; (4) the period of declining yield, 1855-95; (5) rapid expansion, 1896-1930; and (6) "international domination" (impact of world depression and war) and governmental intervention, 1930-48.

In contrast, Part II deals with statistical trends and fluctuations of Australian wheat areas and yields, with correlations between area-yield changes and certain other factors (*e.g.*, rainfall, area under fallow, prices), with calculations of the changing costs and values of wheat production, and with population changes in one of the chief wheat-growing regions (Victoria).

Dunsdorfs is clearly at his best in the historical section. Part II contains many useful supporting tabulations and charts; but much of the statistical analysis will be appreciated only by those who put an excessive value on multiple correlations and higher-order trend and regression equations, as contrasted with simpler measures that would be equally or more appropriate. Any critical economist will be properly skeptical of some of the curvilinear regression lines that appear to be heavily influenced by a few extreme observations not specifically investigated. Nor will he find illuminating the information that regression analysis shows that "rainfall is . . . the major factor in determining annual fluctuations of the yield" (p. 397), that "the rainfall of the wheat-growing season is more important than the rainfall of the entire year" (p. 397), and that increased fallowing and fertilizing have improved Australian wheat yields (pp. 368-74). These conclusions have been accepted as common knowledge for years, having been adequately demonstrated in earlier studies, often by simpler statistical techniques.

On the other hand, several of Dunsdorfs' more striking "statistical conclusions" are open to serious question—*e.g.*, the "finding" that Australian farmers reacted *perversely* to "low" wheat prices and *normally* to "high" prices by expanding their wheat sowings under both conditions. This generalization rests on faulty economic concepts as well as on inappropriate statistical analysis—criticisms more fully developed elsewhere by the reviewer with respect to a roughly similar Canadian analysis (*Econ. Jour.*, June 1956, pp. 271-87).

Despite these and other shortcomings, Dunsdorfs' book is a worthy contribution to Australian economic history. Some of the historical interpretations and policy recommendations will be challenged by careful historians and commodity experts, and economists will point out that a number of pertinent questions about Australian agricultural development have not been adequately discussed. This, however, would seem to be inevitable in view of the huge task of analysis undertaken by the author, a Latvian economic historian who first went to Australia in 1948.

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L'évolution du revenu agricole. Les agriculteurs devant les exigences de la croissance économique et des luttes sociales. By MARC LATIL. Centre d'Études Économiques. Études et Mémoires, No. 29. (Paris: Armand Colin. 1956. Pp. xiv, 378.)

This comparative study of historical changes in agricultural income and its determinants deals with a theme which has become familiar through the work of Colin Clark, E. M. Ojala, and T. W. Schultz. Latil's description of the long-term decline in agricultural incomes in relation to total national income and of changes in farm population and per capita farm and nonfarm incomes focuses on France, the United States, and the United Kingdom, with briefer attention to other European countries and New Zealand, Australia, and Canada. It is an admirable piece of work which adds much to the earlier studies. The statistical series are carried to the early 1950's (the data presented by Clark and Ojala rarely go beyond 1940); his account of the evolution of agricultural income in France is enriched by much new material; and the description of changes in the aggregates is supplemented with information concerning trends in the components—wages, rent, and incomes of farm operators—and an indication of the inequalities in incomes received by "large," "small," and "medium" operators.

Latil's prime objective is to throw light on France's agricultural problem. He is convinced that the policies of protection and price support as pursued in France have been seriously in error and have contributed to the economic stagnation and inflation which have plagued France in the present century. His vigorous and readable style, and the care with which he defines his terms, make this book accessible to the interested layman as well as the professional economist. Detailed discussion of technical problems—notably some of the definitional and measurement problems of national income accounting in the agricultural sector—has been relegated to appendices. Important limitations and qualifications of the data are noted, however, and indeed the book is outstanding for the author's "feel" for the statistical material presented. It is to be regretted that the treatment of the terms of trade between agriculture and nonagriculture in relation to differences in market structure and monopoly power was not pursued more rigorously.

Viewing the agricultural problem in terms of the ineluctable decline in the share of national income going to agriculture, he stresses movement of population out of agriculture as a necessary though not sufficient condition for satisfactory incomes for those remaining. In France farm price supports have contributed little toward solution of the fundamental problem and have in effect been "a tax which bears most heavily on the poor and primarily for the benefit of the rich" (p. 297). Latil notes several features of agricultural policy as pursued in the United Kingdom which he considers superior in terms of "social justice as well as efficiency" (p. 302). But he suggests that agricultural policies of protection and price support have had much the same pernicious effects in France and in the United States. It seems worth while to recall, however, that interventions on behalf of agriculture in the United States prior to 1929 were largely confined to public support of

agricultural education, research, and extension activities which served to widen "access to progress." Latil argues persuasively that the plight of small and medium French farmers stems largely from lack of education, credit, and knowledge of improved methods which has meant denial of this "access to progress." While public support in these lines has been much more substantial in this country than in France, Latil is of course right in pointing out that large numbers of farmers in the United States, particularly in the South, have been similarly by-passed in the nation's economic advance.

Latil seems to suggest that the penchant for protection which has characterized both farm and industrial interests in France has been mutually reinforcing and has aggravated the problems faced by French farmers—apart, that is, from a limited number of large farmers who have been able to modernize and to profit nicely thanks to relatively large output, low costs, and prices propped up by government action ostensibly taken because of the plight of the small farmer. This is part of his treatment of the struggles between social groups—agriculture and industry, small and large farmers, etc.—which have influenced the shares of national income accruing to each. This effort by Latil to analyze the strategies and pressures of social groups to increase their incomes by influencing market conditions and government action is an application of the approach of Jean Marchal. (See "The Construction of a New Theory of Profit," *Am. Econ. Rev.*, Sept. 1951, pp. 549-65.) Latil's book contains a number of interesting hypotheses which do not lend themselves to brief résumé—one of many reasons for hoping that it may be published in English translation.

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Capital Formation in Residential Real Estate. By Leo Grebler, David M. Blank and Louis Winnick. (Princeton: Princeton University Press, for National Bureau of Economic Research. 1956. Pp. xxx, 519. $10.00.)

The National Bureau of Economic Research has earned, deservedly, a reputation for objective and scholarly research. The Grebler-Blank-Winnick study carries on this fine tradition. But it adds one rarer quality, not always to be found in a multi-authored work: It is lucid, well written, and devoid of unnecessary jargon. The authors not only know how to present their findings in well organized chapters, but their literary style is of a high order.

The emphasis of this study is on secular trends and long-term cycles. Its purpose is to extract from the past judgments which may be helpful in gauging the long-term outlook for residential real estate. Part I deals with the strategic factors affecting the formation of real capital in residential construction. Part II analyzes the changing composition of the sources and uses of capital funds in this field. Part III draws some conclusions as to the implications for the future. The text is followed by a 200-page compilation of statistics, some original, some secondary, together with a discussion of the derivation and limitations of these data. No doubt many economists hence-

forth will consult this appendix as a source of statistics needed in their own research.

The study gives emphasis to the lack of reliable construction statistics. For example, we have only the roughest estimates, by decades, of the number of dwelling units added by conversion and the number destroyed through demolition or disaster. Yet in analyzing the housing market, such statistics are essential. Relatively few questions in the area of housing can, in fact, be answered with a high degree of confidence. No one recognizes this fact more than the present authors. Despite the data limitations, however, the authors manage to draw meaningful conclusions by carefully weaving together a great variety of statistical evidence. In some instances, they had to postulate rather heroic assumptions in order to make problems amenable to solution. For example, none of the available series on total mortgage loans distinguish between funds used for new construction and funds used for refinancing.[1] The authors therefore had to work up their own estimates, based upon indirect and highly fragmentary evidence. At another point, in discussing interest rates, the authors found themselves handicapped by lack of a series reflecting mortgage loan yields. As a result, they had to rely upon contract rates—or rates stipulated in the mortgage loan contract—without taking into account any premiums paid or discounts allowed. The difference between true mortgage loan yields and contract rates can, at times, be quite considerable. The authors of this study take great pains in pointing out the statistical limitations of the data and the necessarily tenuous nature of any conclusions based upon them. But will other investigators, relying upon the invaluable statistical compilations in this book, and the prestige of the National Bureau, be equally cautious in drawing their conclusions?

Outstanding among the many findings of this study is the conclusion that housing represents a sharply shrinking sector of the national economy. In terms of real dollars, the percentage of our total output devoted to home building (more accurately, the ratio derived from five-year moving averages of gross capital formation to GNP) has fallen from 8 per cent around 1890 to 3 per cent today. Moreover, the study notes that over this long period residential construction has become a much smaller proportion of total capital investment. Of every $100 invested in new capital assets in the 1890's, roughly $30 went into residential real estate, but by the mid 'twenties the figure was down to $25, and in the early 1950's to a mere $15.

Grebler, Blank, and Winnick are never content to dazzle the reader with their display of statistics. They seek to go behind the figures, to explain, to find basic causes. In accounting for the declining importance of housing, they note that while the number of nonfarm households has been rising at a fast pace, the *rate* of growth has been slowing since the turn of the century. In addition, there has been a persistent decline in the amount of real capital invested per new dwelling unit—a long-term development which seems to have escaped the attention of previous investigators. The average expenditure

[1] This was true at least until the publication of some new, albeit rough estimates in the *Fed. Res. Bull.*, Apr. 1957, XLIII, 368.

per unit, measured in real dollars, declined by one-third during the past sixty years. The authors maintain that in a rapidly developing economy the consumer is constantly confronted by an increasing number of goods and services competing for his income. In the United States the family housing budget has had to make way for such luxuries as automobiles, freezers, washing machines, vacations, and recreation.[2] The evidence indicates that despite substantial boosts in income, consumers allocated roughly the same number of real dollars to housing in the 1950's as they did in the 1890's.

In a book of this length, some shortcomings are almost inevitable. This reviewer was bothered by the tendency of Grebler, Blank, and Winnick to emphasize the long-run relationship between new dwelling units and the increment in households, when the two are equal by definition, (except for conversions, demolitions, and changing vacancies).[3] Over-all, however, the authors have displayed a high order of craftsmanship in a field where statistics are woefully inadequate.

The jacket of this book represents the volume as "a work that economists, bankers, life insurance officials, realtors, and many others will find richly informative." For once, the blurb does not exaggerate.

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[2] On this point, *cf.* "Winnick's Case for a Changing Attitude Toward Housing," and "Reply," *Quart. Jour. Econ.*, May 1956, LXX, 314-23.

[3] A household is defined as a group of persons who occupy a dwelling unit.

Labor Economics

Trade Unions. By ERIC L. WIGHAM. (New York: Oxford University Press. 1956. Pp. 277. $1.20.)

As one of the titles in The Home University Library, *Trade Unions* is designed to introduce to the general reader all of the important areas of knowledge about its subject. Accordingly, Mr. Wigham has organized his material under seven chapter headings: "Trade Unions Today," in which some paradoxes are set forth; "Trade Unions and Their History"; "Trade Unions and Their Members," a survey of union government, structure (including industrial federations of national or localized unions and the Trades Union Congress), and nonbargaining activities; "Trade Unions and Industry," dealing with collective bargaining, compulsory arbitration, strikes (unauthorized as well as sanctioned), nationalization, and joint consultation; "Trade Unions and the State," including the relationship of the trade unions to the major political parties; "Trade Unions and the World," a cursory chronicle of the rise and fall of the various international labor bodies and the least satisfactory chapter in the book; and "Trade Unions and the Future," at the end of which it is suggested that "it may be that we are now in one of those periods of gestation, like those which preceded the new model unions

of 1851, and the new unionism of 1889, which will be followed by the birth of yet another unionism."

The recent history of the British labor movement is strongly reminiscent of the sentimental tale of the self-made businessman to whom success failed to bring happiness, with which our grandparents were beguiled in olden times. By the end of the second world war, British unions had achieved their major historic goals: the task of organization was virtually completed; industry-wide bargaining was widespread; full employment was secured and underwritten by public authority. The achievement of industry-wide bargaining, however, was accompanied by partial atrophy of the local union, or branch, since such essentially local matters as promotion, hiring, and discharge had been subordinated to "national" issues like general wage levels and hours of work; as a result, grievance machinery, which couples the shop stewards to the locals and the latter to the nationals was not articulated to nearly the same extent in Britain as it was in this country. And while the existence of full employment greatly strengthened the bargaining power of the unions, it also made it difficult for them to use their newly won power to the fullest, for out of the combination of full employment and collective bargaining emerged the menace of inflation in an open and weakened economy. But when the top leadership of the Trades Union Congress responded to a Labour Government's appeal for "wage restraint," the rank-and-file failed to appreciate the prospect of defeat being snatched from the jaws of victory; as a result, serious cleavages developed within the trade-union movement. They occurred in the first instance at the level of the work place, where the membership responded apathetically to the appeals of their branches but frequently followed their rather independent shop stewards out on unauthorized strikes. This helped persuade the national leadership to abandon restraint and thus opened a new cleavage higher up in the hierarchy between the national unions and the General Council of the T.U.C. The latter also was finally obliged to give way after having been defeated on the issue at the 1950 Congress. Had the Labour Party remained in power, a final fission—between the political and the trade-union wings of the labor movement—would have been inevitable. In theory, perhaps, no such conflict was necessary, for it had been contemplated that, as socialism and unionism each developed within the community, the unions would become transformed into "responsible" agents of industrial managements. But actually nationalization and joint consultative schemes failed to induce the unionists to change their spots—indeed, they have even been unwilling to surrender restrictive work rules in a climate of full employment—and Wigham opines that "It looks at the time of writing (1956) as if in the end they will change the Labour Party into a conservative party . . . or they will break with it. There is no sign that they are now prepared to accept their own transformation."

These and other issues which the author considers (although in somewhat different form from the above) have of course been analyzed by others who have contributed to the postwar generation's impressive body of literature on British industrial relations. However, Wigham, who is the labor correspondent of *The Times* of London, appears to approach certain problems, if with the

same sympathy as, with somewhat greater detachment than some of his academic colleagues who are themselves connected with the British labor movement and who, although no less objective, are apt to confront the same issues in somewhat more gingerly fashion. Thus our author suggests that the universally deplored phenomenon of member apathy might not be unrelated to compulsory union membership established through collective bargaining (which the British, who can keep a straight face as well as a stiff upper lip, regard as quite compatible with their cherished principle of "voluntary organization"). Yet he adds, "That kind of compulsion did not begin with the trade unions and is not confined to them." Again, while he joins other writers in stressing the conscious attempt of unionists to ensure democratic government by vesting authority to make policy in "lay" executive bodies, Wigham stresses the limitations of such institutions and points to the *de facto* authority not infrequently wielded by appointive full-time officers.

With respect to jurisdictional disputes, he comments on the high degree of voluntary acceptance of decisions handed down by committees set up by the General Council of the T.U.C.; on the other hand, he observes that, when the General Council suspended a little "breakaway" stevedores' union and ordered its members returned to the Transport and General Workers' Union, "No attempt was made to try and meet the wishes of the men concerned." The practice of block voting within the T.U.C. is not criticized by Wigham, although he notes that, on certain occasions, it has served to concentrate decisive authority in the hands of the leaders of the two general workers' unions and the miners. He does criticize the system whereby candidates for membership on the General Council of the Congress, while nominated only by unions within their respective industrial groups, are elected by the entire Congress; this system, he argues, furthers dominance by the large unions. However, he fails to point out that it was intended to prevent the smaller organizations within any group from being excluded from any representation at all by their larger neighbors. Finally, while taking due notice of the remarkable degree of independence which has characterized the relationship existing between the T.U.C. and the Labour Party, he emphasizes certain ties that bind and he even makes a delicate allusion to the cash nexus:

> . . . No union pretends to have the right to dictate the course of action to be taken in Parliament by its sponsored members—which would be regarded as constitutionally undesirable. Mr. Aneurin Bevan is sponsored by the miners. Nevertheless, it is possible some of them are influenced by the knowledge that they depend on the financial support of their unions.

I have tried to indicate that if Wigham is, in places, more unhesitatingly critical of British unionism than some other writers, his criticism always reflects a sympathetic awareness of the democratic objectives of the movement and of the goodwill of the men who fashioned its institutions and who are attempting to adapt them to altered and difficult circumstances. Certainly his criticism lacks entirely the harsh impatience of some critics of British unionism on the doctrinaire left, who have tended to regard deviations by others from certain high standards as personal betrayal. One would do well

to take to heart Dr. Johnson's remark: "As I know more of mankind I expect less of them, and am ready now to call a man a *good man*, upon easier terms than I was formerly."

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The Labor Policy of the Free Society. By SYLVESTER PETRO. (New York: Ronald Press. 1957. Pp. x, 339. $5.00.)

The point of view of this book in essence is that of von Mises, to whom tribute is paid and who is frequently cited. Part I describes the free society as one in which "all persons shall have a right to act largely as they wish" and in which "property and contract rights are preserved largely intact." Positive action by the state then always reduces net social freedom and productivity. Rather surprisingly a place is found for trade unions and collective bargaining among the free institutions of this society, but they may not invade the property rights of others or engage in coercion. American unions in fact are said to have combined "poor performance and coercive practices." Despite sympathy for comments on the relations of individual freedom and welfare, the economist reader misses recognition of the ways in which the modern economy differs from the society of free competition which the author envisages and idealizes.

Part II gives a documented analysis of the development of the common law from the point of view of the principle of "employee free choice," which is held "the most satisfactory practical expedient" for reconciling antagonism to arbitrary power with sympathy for the individual worker and faith in collective bargaining. The common law is interpreted as in the main having properly applied free-market principles, protecting rights of workers and employers, but not the right to use force or fraud against others. The Norris-LaGuardia and Wagner Acts are held to have been interested in eliminating employer opposition to unions, but not basically in preserving free choice, and to have left strong unions with all the arms, while leaving employers, employees and independent unions defenseless against coercive activities. The Taft-Hartley Act is said to be actually concerned with free choice of employees, although its administration has not clearly held to this principle. The analysis assumes that coercion by employers has been effectively prosecuted, while this is not true of coercion by unions.

Although there is serious and valuable analysis of some real problems involving coercive activities by unions, the discussion is marred by extreme and unsupportable statements as to the intent and administration of the labor legislation. Nevertheless, the objective of preserving free choice of employees and freedom of collective bargaining should be the basis of national labor policy, and the author's proposals deserve careful consideration. He proposes (1) outlawing organizational picketing, compulsory unionism, and coercive secondary action, but preserving the right to strike; (2) continuing the prohibition of coercion by employers, but permitting them to offer benefits directly to employees during organization activity; (3) permitting small groups to form separate units, with the right of appeal to the

courts on representation matters; (4) leaving collective bargaining to the free market, without interference by either employer or union, *i.e.*, by picketing in numbers, black-listing, or boycotts against "struck work"; and by eliminating "political pressure" through the "bargaining in good faith" rules or intervention in industry-wide strikes, save for cooling-off periods. This structure has considerable logical merit. Practically, however, it seems calculated to promote continuing conflict over organization, although eliminating some unjustifiable types of pressure. What is needed is effective prevention of coercion by employers, and a more discriminating analysis of the types of union action which should be stopped in order to ensure free choice to employees. "Compulsory unionism," for example, might better be left to decision by employers and freely chosen unions, while compulsion in obtaining union recognition or closed-shop contracts, or arbitrary exclusion from a union, should be outlawed. The author's aim to free collective bargaining from any interference with the free market presents difficulties, since by definition collective bargaining or a peaceful strike involves such interference.

The final chapter attacks the administrative process as ineffective and inadequate in protection of rights. The remedy proposed is to repeal the Norris-LaGuardia Act, abolish the National Labor Relations Board as a judicial agency, give the federal courts full jurisdiction in law and equity in this field, and give state courts clear authority to participate in enforcement of national labor policy. The argument rests on the belief that "a detailed, coherent code of substantive law for labor relations exists already in large measure and can be realized in full with no trouble."

Few informed persons can be satisfied with either the substance or the administration of national labor policy at present. This book lacks the balanced appraisal needed for a solution of these difficult problems in the interests of individuals and of mature, free collective bargaining. In the limited field of union coercion, however, it raises very real problems which need solution, although some of the proposals are highly questionable. It seems to the reviewer that a simpler law could more effectively outlaw unreasonable economic pressure as well as physical coercion, allow more scope for state action in harmony with federal policy, reduce the extent of undesirable political intervention in collective bargaining, and simplify and improve administration, without the doubtful expedient of turning the job over to the courts.

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Population; Welfare Programs; Standards of Living

Must Men Starve? The Malthusian Controversy. By JACOB OSER. (New York: Abelard-Schuman Ltd. 1957. Pp. 331. $4.50.)

Professor Oser begins his book with a somewhat unusual, though effectively documented, restatement of Malthus' pronouncements. He pictures Malthus as insisting on the need for maintaining the struggle between increasing

population and less rapidly increasing food supply because otherwise the working population would get soft and lazy and decline to work (presumably to the discomfiture of the elite, nonworking population). He even quotes Malthus' arguments against the poor laws and private charity as interfering with the proper function of food-scarcity as a stimulus to work. And he chides the neo-Malthusians for putting their whole stress on the reduction of the birth rate, while overlooking the fact that much of the world's present poverty and hunger result from faulty social relations and faulty economic and political institutions.

After his opening comments on Malthus and his present-day disciples, the author devotes most of his book to specific reasons why there is hunger and poverty in so large a part of the world today. Several of his most important contributions to the problem are summarized in a single paragraph (p. 67), as follows:

> Unemployment is a cause of poverty. Destruction of food and output restrictions are causes of hunger. The fear of goods restricts the maximum utilization of world resources through international trade. The lack of industrialization reduces the ability of underdeveloped countries to pay for agricultural imports. There is a tendency to reduce consumption through price-raising measures. Certain barriers to increased consumption interfere with increased production. The quest for national security impoverishes mankind. These are not the only causes of the world's poverty and hunger, but they are important causes. And none of them can be ascribed to any malevolent law of nature, or to man's indiscreet rate of reproduction.

Elsewhere (p. 60) he explains the "fear of goods" which is characteristic of modern mercantile and industrialism, as follows:

> Not the consumer interest, but the producer interest, occupies the centre of the stage. Goods are destroyed or dumped on foreign markets, and their output is restricted in order to keep prices up. In modern times, imports rather than exports are taxed, and exports are frequently subsidized.

Large surpluses of food are now produced in some countries, even in some of the underdeveloped countries; but there is no means whereby the hungry populations of the less fortunate countries (or even of the same countries) can obtain this food, since they have neither money with which to buy it nor acceptable nonfood goods to exchange for it. This perhaps is the most fundamental of the urgently immediate problems that stand in the way of making the hungry millions less hungry.

There is relatively little on the limits of natural resources, except for water, the conservation of which Oser considers even more important than the conservation of the soil (p. 83). Particularly significant is his comment on the natural run-off—the water which flows down the rivers to the sea—as taking away or "wasting" the larger part of the water that falls in the form of rain.

There are chapters on such topics as land tenure, industrialization, and

commercial policies, stressing the effect of these factors on the level of living, especially of those population groups whose level of living is unsatisfactory. This includes extensive comment on the color situation in parts of Africa—with, happily, no reference to historic relations between the white colonists and the red Indians in North America. Then there are two excellent conventional chapters on the methods by which food supplies are currently being increased and could be much further increased.

An interesting section is one headed "The Myth of the Family Farm" (p. 142), in which Oser sets forth the economic disadvantages of the farm small enough to be operated by the farmer and his family. And O. E. Baker is no longer with us, to list offsetting social or personal advantages!

The final chapter is devoted to Puerto Rico as a small-scale demonstration of the working out of Malthusian relationships. The description of the situation in this island, with its poverty and its government-supported advance in industrialization, is effective, though in a few cases the author has accepted specific small-scale results or conditions as general. Puerto Rico is not, however, a typical case, since it has a number of special characteristics, among which are a heavy emigration to the mainland each year and a large annual subsidy to its economy in various forms from the United States government.

There are spots here and there in the book where the statements seem overdrawn or not quite realistic or convincing. For example, the method of computing corporate profit as a percentage of the (often very early) initial investment, in Chapter 9; or some of the statistics of war losses, in Chapter 4.

One difficulty in evaluating past changes, as one must do in order to project future changes or to offer advice for the future, grows out of the fact that within the past two centuries a major part of the world has passed into a price or market economy—into a system where price is more important than productivity. Most of the current discussions of the population problem rest largely on the assumption that productivity is the one thing needed. Oser's book, though it does not cover all phases of the situation, offers a major contribution to a more up-to-date point of view.

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Demographic Analysis: Selected Readings. Edited by JOSEPH J. SPENGLER and OTIS DUDLEY DUNCAN. (Glencoe, Ill.: Free Press. 1957. Pp. xiii, 819. $9.50.)

This volume contains a collection of reprints of more than sixty articles originally published in some thirty different periodicals and compendia, mostly during the last ten years. The articles are classified under seven headings: I. Past and Prospective Growth and Distribution of World Population; II. Mortality; III. Fertility, Nuptiality, and Replacement; IV. International Distribution of Population and Migration; V. Internal Distribution and Migration; VI. Population Composition and Utilization of Human Resources; VII. Selected Regional Studies. The last heading needs some explanation; the items presented under it are studies of population trends and their economic

and social implications in 11 countries (France, Italy, Germany, USSR, Brazil, Puerto Rico, Egypt, China, Japan, Indonesia, and Burma) and 2 world regions (Africa and Southeast Asia.) Articles are drawn primarily from American sources but also from some international publications and two foreign journals: *Population Studies* and the *Canadian Journal of Economics and Political Science.* A well-selected bibliography of additional articles (and also books in the case of heading VII above) is included.

Another such selection of readings, *Population Theory and Policy,* has been compiled by the same editors and issued by the same publisher. The publication under review differs from the other in that articles are selected to exemplify the analytical use of demographic data for investigating specific questions rather than attempts to formulate theory or prescribe action. Few of the articles included are primarily methodological but they illustrate the application of analytical methods as well as the objects and results of demographic analysis.

Both *Demographic Analysis* and *Population Theory and Policy* are intended primarily as teaching aids. The reviewer surmises that they will appeal to many teachers of courses on demography and population problems as convenient sources of collateral readings in conjunction with standard textbooks. Many a research worker in this field will also appreciate the convenience of having these articles collected from so many different sources, some of which he could not easily get otherwise. Journal literature relating to demography is especially fugitive because there is no American journal specialized in demography and articles in this field appear in a wide variety of periodicals. The book under review includes selections from journals in economics, sociology, statistics, geography, biology, eugenics, public health, education, labor, and law.

It is difficult to criticize the editors' choice of items to be included. Among the most important contributions on the topics listed, possibly a dozen different selections could have been made with equal pertinence to the purpose of the volume. However, one chapter of demographic analysis appears to this reviewer to have been somewhat neglected, namely, the study of interrelationships of mortality, fertility, migration, and population growth and structure. This topic is touched upon in several of the articles, but no example is given of works which deal primarily with the various relationships involved.

One detail of the form of presentation deserves an adverse comment. The reader who wishes to know the date and place of original publication of any of the items reprinted here can only find them by searching through a long list of "Acknowledgements" at the beginning of the book, where the items are not arranged in any order that is helpful for this purpose. It would have been a great convenience if the citation had been given at the head of each article.

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TITLES OF NEW BOOKS

General Economics; Methodology

BALSEY, H. L. *A survey of the use of supplementary readings in the principles of economics course.* (Ruston: Dept. Bus. and Econ. Research, Louisiana Polytech. Inst. 1957. Pp. 24.)

BULGARIAN ACADEMY OF SCIENCES, INSTITUTE OF ECONOMICS. Papers. (Sofia: Bulgarian Acad. Sci. 1955. Vol. 1-2, pp. 287; vol. 3-4, pp. 369.)

BÜLOW, F. *Volkswirtschaftslehre-Eine Einführung in das wirtschafts- und sozialwissenschaftliche Denken.* (Berlin: Franz Vahlen. 1957. Pp. ix, 517. DM 23,50.)

DI FENIZIO, F. *Lezioni sul metodo dell'economia politica.* (Milan: L'industria. 1957. Pp. 296. L. 3.000.)

DIMOCK, M. E. *Business and government.* 3rd ed. (New York: Henry Holt. 1957. Pp. xiv, 559. $6.)

FETTER, F. W., ed. *The economic writings of Francis Horner in the Edinburgh Review 1802-6.* Ser. reprints of scarce works on pol. econ. no. 13. (New York: Kelley & Millman. 1957. Pp. vii, 134.)

"In the spring of 1802 Horner was one of a group of young Scots, who with Sydney Smith, an English clergyman . . . planned the *Edinburgh Review.* The first issue appeared in October 1802, and of the twenty-nine articles Horner contributed four . . .

"Horner's connection with the *Edinburgh Review* was only a small part of a full life. From December 1806 until his death he was, except for a few months, a member of Parliament . . .

"Horner's leadership in bringing the currency question before Parliament in 1810, which led to the Report of the Bullion Committee, of which he was a co-author, and to the debate on that Report, was his most famous Parliamentary action. This, however, was only one aspect of ten years of Parliamentary activity in which he was a vigorous spokesman for correction of the abuses of the judicial system, softening of the severities of the penal code, elimination of sinecures of church and state, greater educational opportunities, removal of the disabilities on Catholics, more equitable treatment for Ireland, a defence of the rights of Scotland and of the Church of Scotland, and elimination of the slave trade. Horner was a supporter of the market, and of noninterference of government, as a means of getting rid of the abuses of privilege and of encouraging the better utilization of the nation's productive powers. His faith in political economy was, however, always tempered by a belief in a national interest that might transcend the immediate economic gain, and that made his devotion to 'ecomonic laws' less dedicated than that of Ricardo, of McCulloch, or of Cobden and Bright." (These extracts are from the introduction by F. W. Fetter.)

FROWEN, S. AND HILLMANN, H. C., ed. *Economic issues—a financial and economic debate in the critical years 1954-57.* (London: Waterlow and Sons, Ltd. 1957. Pp. xi, 231. 21*s* 6*d*.)

GUTHRIE, J. A. *Economics.* (Homewood, Ill.: Irwin. 1957. Pp. xvii, 537, $6.)

HAHN, L. A. *Common sense economics.* (London: Abelard-Schuman. 1956. Pp. 244. 18*s* 6*d*).

HANSEN, A. H. *The American economy.* (New York: McGraw-Hill. 1957. Pp. xv, 199. $5.)

HEATH, S. *Citadel, market and altar—emerging society.* (Elkridge, Md.: Sci. of Soc. Foundation. 1957. Pp. xxiv, 259. $6.)

HOLT, S. AND MCCRACKEN, H. L. *Economics and you.* (New York: Charles Scribner's. 1956. Pp. viii, 550. $3.68.)

An attractively designed, generously illustrated, and interestingly written elementary text, likely to be useful primarily at the secondary level.

PHILLIPS, E. B. *Consumer economic problems.* (New York: Henry Holt. 1957. Pp. viii, 486. $4.75.)

RASMUSSEN, J. J., ed. *Proceedings of the Thirty-First Annual Conference of the Western Economic Association at Los Angeles, California, August 30-31, 1956.* (Salt Lake City: Univ. of Utah Press. 1957. Pp. 93.)

SCHNEIDER, E. *Einführung in die Wirtschaftstheorie. Vol. I, Theorie des Wirtschaftskreislaufs.* Vol. II, *Wirtschaftspläne und wirtschaftliches Gleichgewicht in der Verkehrswirtschaft.* Vol. III, *Geld, Kredit, Volksweinkommen und Beschäftigung.* New ed. (Tubingen: J. C. B. Mohr (Paul Siebeck). 1957. Pp. viii, 148; viii, 409; viii, 348. DM 11,80; 19,60.)

TUTTLE, A. M. *Elementary business and economic statistics.* (NewYork: McGraw-Hill. 1957. Pp. xiii, 663. $6.75.)

UMBREIT, M. H., HUNT, E. F. AND KINTER, C. V. *Economics—an introduction to principles and problems.* 3rd ed. (New York: McGraw-Hill. 1957. Pp. xiv, 637. $6.)

VINING, R. *Economics in the United States of America—a review and interpretation of research.* (Paris: UNESCO. 1957. Pp. 62. $1.)

WEBER, A. *Kurzgefasste Volkswirtschaftspolitik.* 7th ed. (Berlin: Duncker & Humblot. 1957. Pp. xii, 395. DM 16,80.)

Price and Allocation Theory; Income and Employment Theory; Related Empirical Studies; History of Economic Thought

AKERMAN, J. *Structures et cycles économiques.* Translated from Swedish by B. Marchal and G. Augot. Biblioth. sci. écon. (Paris: Presses Univ. de France. 1957. Vol. II, pt. 1, pp. 196; pt. 2, pp. 200. 960 fr.; 960 fr.)

ARNDT, E. *Theoretische Grundlagen der Lohnpolitik.* (Tübingen: J. C. B. Mohr (Paul Siebeck). 1957. Pp. xi, 295. DM 24,60; paper, DM 21,—.)

BUSHAW, D. W. AND CLOWER, R. W. *Introduction to mathematical economics.* (Homewood, Ill.: Irwin. 1957. Pp. xii, 345. $7.)

CLARK, J. B. *The distribution of wealth—a theory of wages, interest and profits.* Reprints of econ. classics ser. (New York: Kelley & Millman. 1956. Pp. xxviii, 445. $8.50.)

DOMAR, E. D. *Essays in the theory of economic growth.* (New York: Oxford Univ. Press. 1957. Pp. ix, 272. $4.50.)

DUNPHY, L. M. *Simon Newcomb—his contribution to economic thought.* Catholic Univ. of America, Stud. in econ., Ph.D. dissertation abstract ser. no. 14. (Washington: Catholic Univ. of America Press. 1956. Pp. viii, 32. 50¢.)

FRIEDMAN, M. *A theory of the consumption function.* Gen. ser. no. 63. (Princeton: Princeton Univ. Press, for Nat. Bur. Econ. Research. 1957. $4.75.)

GRAAFF, J. DEV. *Theoretical welfare economics.* (New York: Cambridge Univ. Press. 1957. Pp. x, 178. $4.)

GRANGER, G.-G. *La mathématique sociale du Marquis de Condorcet.* Biblioth. philos. contemporaine ser. (Paris: Presses Univ. de France. 1956. Pp. viii, 180. 650 fr.)

LITTLE, I. M. D. *A critique of welfare economics.* 2nd ed. (New York: Oxford Univ. Press. 1957. Pp. vi, 302. $4.80.)

MAYNARD, G. *The control of inflation.* Research ser. no. 187. (London: Fabian Soc. 1957. Pp. 32. 2*s*.)

MORICE, J. *La demande d'automobiles en France.* (Paris: A. Colin. 1957. Pp. 234. 1.800 fr.)

PAAKKANEN, J. *Hintateorian realismi ja yritysten hintapäätökset.* (The realism of price theory and the price decision of the firm.) With English summary. (Helsinki: Helsinki Research Inst. for Bus. Econ., Helsinki School of Econ. 1957. Pp. 135.)

PIETTRE, A. *Marx et Marxisme.* (Paris: Presses Univ. de France. 1957. Pp. viii, 228. 720 fr.)

ROSENZWEIG, J. E. *The demand for aluminum—a case study in long-range forecasting.* Bus. stud. no. 10. (Urbana: Bur. Econ. and Bus. Research, Univ. of Illinois. 1957. Pp. 67. $1.)

ST. CLAIR, O. *A key to Ricardo.* (New York: Kelley & Millman. 1957. Pp. xxv, 364. $6.)

SCHULTZ, H. *The theory and measurement of demand.* (Chicago: Univ. of Chicago Press. 1957. Pp. xxix, 817. $12.50.)

This is a reprinting of the 1938 edition.

SHIELDS, SISTER M. S. *Some Irish contributions to the history of economics.* Catholic Univ. of America, Stud. in econ., Ph.D. dissertation abstract ser. no. 13. (Washington: Catholic Univ. of America Press. 1955. Pp. xv, 45. 75¢.)

WEBER, A. *Theory of the location of industries.* Transl. from the German with an introduction and notes by C. J. Friedrich. (Chicago: Univ. of Chicago Press. London: Cambridge Univ. Press. Toronto: Univ. of Toronto Press. 1957. Pp. xxxiii, 256. $5.)

Economic History; Economic Development; National Economies

ADDIS, J. P. *The Crawshay dynasty—a study in industrial organization and development, 1765-1867.* (Cardiff: Univ. of Wales Press. 1957. Pp. xiv, 184. 12*s* 6*d*.)

"This monograph is an attempt to trace, over a period of a hundred years, the rise and relative decline of the Crawshays, one of the greatest iron firms of the last century." (From the preface.)

AGUET, J.-P. *Contribution à l'étude du mouvement ouvrier français—les Grèves sous la Monarchie de juillet (1830-1847).* Coll. Étud. d'hist. écon., pol. et soc. no. 9. (Paris: Droz. 1957. Pp. 442. 2.600 fr.)

ALLEN, G. C. AND DONNITHORNE, A. G. *Western enterprise in Indonesia and Malaya—a study in economic development.* (New York: Macmillan, in coop. with Inst. of Pacific Relations. 1957. Pp. 321. $5.75.)

BARAN, P. A. *The political economy of growth.* (New York: Monthly Review Press. 1957. Pp. ix, 308. $5.)

CHAMBERS, J. D. *The Vale of Trent 1670-1800—a regional study of economic change.* Econ. Hist. Rev. suppl. no. 3. (New York: Cambridge Univ. Press, for Econ. Hist. Soc. 1957. Pp. 63. $1.75.)

CHARDONNET, J. *Une oeuvre nécessaire—l'industrialisation de l'Afrique.* Inst. Univ. des Hautes Étud. Internat. pub. no. 26. (Paris: Droz. 1957. Pp. 128. 800 fr.)

CLOUGH, S. B. *The rise and fall of civilization—an inquiry into the relationship between economic development and civilization.* (New York: Columbia Univ. Press. 1957. Pp. xi, 291. $4.75.)

This is a second printing of a volume originally published in 1951.

COLE, G. D. H. *The post-war condition of Britain.* (London: Routledge & Kegan Paul. 1956. Pp. xix, 483. 40*s*.)

DATTA, A. *Essays on economic development.* (Calcutta: Bookland Private. 1957. Pp. iii, 148. Rs 5/-.)

EDWARDS, R. D. AND WILLIAMS, T. D., ed. *The great famine—studies in Irish history 1845-52.* (New York: New York Univ. Press. 1957. Pp xvi, 517. $6.)

FARMER, B. H. *Pioneer peasant colonization in Ceylon—a study in Asian agrarian problems.* (New York: Oxford Univ. Press, for Royal Inst. of Internat. Affairs. 1957. Pp. xxvii, 387. $8.80.)

FR.-CHIROVSKY, N. L. *The economic factors in the growth of Russia.* (New York: Philosophical Lib. 1957. Pp. xv, 178. $3.75.)

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NOTES

A standing Committee on Academic Freedom and Civil Liberties has been established by the Executive Committee of the American Economic Association. Professor Morris A. Copeland, president of the Association, has appointed Richard B. Heflebower (Northwestern University) for a one-year term, Howard Bowen (Grinnell College) for a two-year term, and Fritz Machlup (Johns Hopkins University) for a three-year term as members, with the last named as chairman.

The Committee will not take upon itself any of the functions for which the American Association of University Professors was established. For example, investigations of terminations of appointments in violation of tenure rules are clearly beyond the scope of the Committee; but in its periodical reports the Committee may communicate to the Executive Committee and the members of the American Economic Association the findings and actions of the A.A.U.P. as far as they concern teachers of economics. The Committee is prepared to receive information from members of the AEA about infringements of academic freedom and civil liberties affecting economists of which they may have first-hand knowledge. Instances of improper pressure by university authorities or outside groups concerning appointments or terminations of appointments of economists, concerning the adoption or rejection of textbooks and reading materials for instruction in economics, or similar interferences may be brought to the attention of the Committee.

President Copeland announces that the Association has received two grants of funds:

1. A grant of $9,000 from the Carnegie Corporation for three years to make possible attendance of members of the American Economic Association at scholarly meetings held in foreign countries.

2. A grant of $13,000 from the Rockefeller Foundation to finance the publication of a series of survey articles in the *American Economic Review* over a period of four years. Authors of the proposed articles will review and appraise recent contributions with respect to selected areas or topics, work on which has been especially active. The Board of Editors, who will make the selection of subjects and authors, welcome suggestions.

SEVENTIETH ANNUAL MEETING OF THE AMERICAN ECONOMIC ASSOCIATION

Sheraton Hotel, Philadelphia, Pennsylvania, December 28-30, 1957

Preliminary Announcement of the Program, July 17, 1957

Friday, December 27, 1957

6:30 P.M. Executive Committee Dinner Meeting

Saturday, December 28, 1957

9:00 A.M. AGENDA FOR A NATIONAL MONETARY COMMISSION
Chairman: To be announced
Papers: The Financial Structure
HERBERT STEIN, Committee for Economic Development
The Monetary Standard
JAMES W. ANGELL, Columbia University
The Role and Control of Monetary Policy
EDWARD M. BERNSTEIN, International Monetary Fund

Discussants: A. N. McLeod, Toronto-Dominion Bank
John G. Gurley, Brookings Institution

Petroleum and Natural Gas and the Public Interest
Chairman: Ben W. Lewis, Oberlin College
Papers: Prices, Costs and Conservation in Natural Gas
Joel B. Dirlam, University of Connecticut
Prices, Costs and Conservation in Petroleum
James R. Nelson, Amherst College
Discussants: Leslie Cookenboo, Jr., The Rice Institute
John W. Boatwright, Standard Oil Company of Indiana

2:30 P.M. State and Local Public Finance
Chairman: Richard A. Musgrave, University of Michigan
Papers: The Role of Major Metropolitan Centers in State and Local Finance
Harvey Brazer, University of Michigan
Outlook for Fiscal Needs and Resources of State and Local Governments
Richard Netzer, Federal Reserve Bank of Chicago
Discussants: Lyle C. Fitch, Institute of Public Administration
Walter W. Heller, University of Minnesota

Veblen Centenary Roundtable
Chairman: To be announced
Papers: The Force and Impact of Veblen
Joseph Dorfman, Columbia University
To be announced
Allan G. Gruchy, University of Maryland
To be announced
Isador Lubin, Industrial Commissioner, New York State
Veblen's Critique of the American Economy
Paul M. Sweezy, Cambridge, Massachusetts

Current Economic Questions Relating to Western Europe
Chairman: To be announced
Papers: The Lessons from Benelux and the Coal and Steel Community for the European Common Market and Free Trade Area Proposals
Raymond F. Mikesell, University of Oregon
Additional papers and discussants to be announced.

5:00 P.M. Cocktail Hour
8:00 P.M. Economics in the Union of Soviet Socialist Republics
Chairman: To be announced
Papers: To be announced

Sunday, December 29, 1957

9:00 A.M. Income and Consumption
Chairman: Frank A. Hanna, Duke University
Papers: The Incomes of Individuals and the Structure of the Consumer Unit
Dorothy Brady, University of Chicago
Factors Associated with Income Variability
Ralph B. Bristol, Jr., University of Michigan
Changes in Concepts of Income Adequacy over the Last Century
Helen H. Lamale, Bureau of Labor Statistics
Discussants: To be announced

I. ECONOMIC PROJECTIONS; II. A STATISTICAL CONTRIBUTION TO PRICE THEORY
Chairman: To be announced
Papers: Economic Projections—Tools of Economic Analysis and Decision Making
GERHARD COLM, National Planning Association
A Theory of Anticipatory Prices
HOLBROOK WORKING, Food Research Institute, Stanford University
Discussants: To be announced

TRENDS IN CAPITAL INVESTMENT AND CAPACITY
Chairman: MARTIN R. GAINSBRUGH, National Industrial Conference Board
Papers: Capacity Utilization and the Rate of Profitability in Manufacturing
WILLIAM BUTLER, Chase Manhattan Bank, New York City
Review of Recent Estimates of Capital Coefficients in Manufacturing
DANIEL CREAMER, National Industrial Conference Board
Discussants: ERIC SCHIFF, Machinery & Allied Products Institute
ROBERT C. WASSON, U. S Department of Commerce

2:30 P.M. MEASURING PRODUCTION IN THE U.S.S.R.
Chairman: CALVIN HOOVER, Duke University
Papers: Soviet Agricultural Output
GEORGE KUZNETS, University of California
Industrial Growth in the Soviet Union
G. WARREN NUTTER, University of Virginia
Soviet Transportation Development: A Comparison with the United States
ERNEST WILLIAMS, Columbia University
Discussants: D. GALE JOHNSON, University of Chicago
HANS HEYMANN, JR., The RAND Corporation
HOLLAND HUNTER, Haverford College

MONETARY ANALYSIS AND THE FLOW OF FUNDS
Chairman: HENRY C. MURPHY, International Monetary Fund
Papers: A Cyclical Model for Postwar U. S. Financial Markets
JOHN C. DAWSON, Grinnell College
An Analytical Interpretation of the Flow-of-Funds Accounts
STEPHEN TAYLOR, Board of Governors of Federal Reserve System
Discussants: ALAN GREENSPAN, Townsend-Greenspan and Company, Inc.
PAUL SIMPSON, University of Oregon

FURTHER EXPLORATIONS IN MONOPOLISTIC-COMPETITIVE PRICE THEORY
Chairman: To be announced
Papers: The Uses of Diversity: Competitive Bearings of Diversity between Firms in Cost and Demand Functions
JOHN M. CLARK, Columbia University
Excursion into the Field of Cost Accounting from the Basis of the Law
WALTON HAMILTON, Arnold, Fortas & Porter
Discussants: To be announced

8:00 P.M. PRESIDENTIAL ADDRESS
Chairman: SUMNER SLICHTER, Harvard University
Presidential Address: To be announced
MORRIS A. COPELAND, Cornell University

Monday, December 30, 1957

9:00 A.M. DEMOCRACY AND TRADE UNIONISM
Chairman: To be announced
Papers: Some Efforts at Democratic Union Participation
BENJAMIN D. SEGAL, Fund for the Republic
Some Requirements for Union Democracy
JOEL SEIDMAN, University of Chicago
The Usefulness of Law in Obtaining Union Democracy
CLYDE W. SUMMERS, Yale University Law School
Discussant: ARTHUR J. GOLDBERG, General Counsel, Industrial Union Department, AFL-CIO

AGRICULTURAL PARITY
Chairman: JOHN D. BLACK, Harvard University
Papers: "Parity Price," A Case Study: The Concept of a Solution to an Economic Problem
RUTLEDGE VINING, University of Virginia
Parity Re-examined
O. V. WELLS, U. S. Department of Agriculture
Discussant: VINCENT W. BLADEN, University of Toronto
Additional discussant to be announced

A CRITICAL EVALUATION OF PUBLIC REGULATION BY INDEPENDENT COMMISSIONS
Chairman: HORACE M. GRAY, University of Illinois
Papers: The Role of Competition in the Regulated Industries
WALTER ADAMS, Michigan State University
The Protective Functions of Commission Regulation
LUCILE SHEPPARD KEYES, Washington, D.C.
The Economic Planning Function under Public Regulation
LELAND OLDS, Energy Research Associates
Discussants: To be announced

12:30 P.M. Joint Luncheon with the American Finance Association
Chairman: To be announced
Address: To be announced

2:30 P.M. IS ANOTHER MAJOR BUSINESS CONTRACTION LIKELY?
Chairman: To be announced
Papers: The Money Economy and Business Contractions
ASHER ACHINSTEIN, Legislative Reference Service, Library of Congress
Postwar Cyclical Experience and Economic Stability
BERT G. HICKMAN, The Brookings Institution
Discussant: V. LEWIS BASSIE, University of Illinois
Additional discussant to be announced

SELECTED PAPERS—American Economic Association Competition
Chairman: RUTH P. MACK, National Bureau of Economic Research
Papers: To be announced
Discussant: DONALD F. GORDON, University of Washington
Additional discussant to be announced

STATISTICAL COST FUNCTIONS (Joint session with the Econometric Society)
Chairman, papers, and *discussants* to be announced

5:00 P.M. Business Meeting
6:00 P.M. Executive Committee Dinner Meeting

Fellowships and Grants

The John Hay Whitney Foundation has announced Opportunity Fellowships, competition for which is open to any citizen of the United States and its territories who has given evidence of special ability and who has not had full opportunity to develop his talents because of arbitrary barriers, such as racial or cultural background or region of residence. The fellowships are open not only for graduate academic study but for any kind of training or experience (journalism, industry, labor, the arts, and so forth) which may be useful in developing varied talents and forms of leadership. Awards normally range from $1,000 to $3,000. Completed applications must be filed not later than November 30. Communications may be addressed to Opportunity Fellowships, John Hay Whitney Foundation, 630 Fifth Avenue, New York 20, N. Y.

The Washington Office of the Social Science Research Council has been closed and the administration of the Council fellowships and grants has been transferred to the main office at 230 Park Avenue, New York 17, N. Y.

The Council is again offering during the coming year predoctoral and postdoctoral research training fellowships, faculty research fellowships and grants-in-aid of research in all fields of social science. In addition, several special programs of fellowships and research grants are being continued. Two new programs—senior research awards in American governmental affairs and grants for research on the Near and Middle East have been initiated. A descriptive circular and application forms will be available on request about the 1st of October. The earliest closing date for applications will be November 1. Inquiries should be directed to the New York address of the Council given above.

Announcements

The Roper Public Opinion Research Center has been established at Williams College. Its main function is to make the Roper survey materials available for teaching and research purposes. The Center contains the raw materials of more than 600,000 interviews, dating from 1938, conducted by the Roper organization for *Fortune Magazine* and various American industries. Accredited individuals may obtain statistical summaries of Roper data. In cases of minor research projects, the tabulations are made at the Center. When the magnitude and complexity of the research warrant it, the Center loans duplicate sets of materials for a stipulated period of time. Requests for materials should be made to Philip K. Hastings, director, Roper Public Opinion Research Center, Williams College, Williamstown, Massachusetts.

The recently established Malayan Economic Society is publishing the *Malayan Economic Review,* formerly sponsored by the University of Malaya Economics Society. The editor and the editorial board propose to continue a policy of encouraging discussion of the economic problems of Malaya and also plan to initiate a section of economic statistics with interpretations of their significance. The charge for the *Review* is M$3.00 an issue or M$6.00 for two issues a year. Communications about the *Review* should be addressed to the Editor, You Poh Seng, Malayan Economic Review, University of Malaya, Singapore 10.

The *Naval Research Logistics Quarterly* now in its fourth year of publication, invites scholars interested in the general field of logistics to submit manuscripts for publication. The journal is devoted to the dissemination of scientific information in logistics and will publish research and expository papers in the areas of mathematics, statistics, and economics relevant to logistics operations. Manuscripts should be sent to the Managing Editor, Naval Research Logistics Quarterly, Office of Naval Research, Washington 25, D.C.

The Committee for Economic Development is holding a competition of ideas on "What is the most important economic problem which will face the United States in the next

twenty years." The competition will be open to anyone in the free world who wishes to enter except a few groups specified in the Rules and Regulations. Papers to be submitted must not exceed 2,000 words, must be in English and must be submitted by the end of October 1957. Winners of the 50 prizes of $500 each will be announced early in 1958. Copies of the Rules and Regulations may be obtained from the Committee for Economic Development, 444 Madison Ave., New York 22, N. Y.

The Metropolitan Economic Association has elected the following officers for the year 1957-58: William A. Berridge, Metropolitan Life Insurance Company, president; Robert D. Liter, College of the City of New York, vice president; Harold B. Ehrlich, Rutgers University, secretary; Edward Marcus, Brooklyn College, treasurer.

The headquarters office of the American Council of Learned Societies has been transferred to New York City, in the Carnegie Endowment International Center, 345 East 46th Street. The newly appointed president, Frederick Burkhardt, will be at the New York headquarters office. J. F. Wellemeyer, who has been acting as executive director of the ACLS, is now director of the Washington office.

Visiting Foreign Scholars

Trygve M. Haavelmo, of the University of Oslo, Norway, has been appointed Ford Foundation visiting research professor of economics at the University of Chicago.

Lachlan McGregor, of Melbourne University, is visiting lecturer in the College of Commerce and Business Administration, Department of Economics, University of Illinois.

Geoffrey Maynard, lecturer at University College, Cardiff, Wales, is spending the current academic year in the department of political economy, Johns Hopkins University.

Michael V. Posner, of the Institute of Statistics, Oxford University, has been appointed visiting lecturer in economics at Wesleyan University.

Kakkadan Nandanath Raj, of the Delhi School of Economics, will be visiting professor in the department of political economy, the Johns Hopkins University, in the second term of the current academic year.

Mataji Umemura, of Hitotsubashi University, Tokyo, is a research fellow in the department of political economy, the Johns Hopkins University.

Deaths

William Adams Brown, Jr., senior staff member of the Brookings Institution, died April 19, 1957.

Joseph W. Charlton, professor of economics and business, Grinnell College, died January 31, 1957.

Harold J. Plous, of Santa Barbara, California, died May 2, 1957.

Ralph B. Tower, professor of economics and chairman of the department of economics, West Virginia University, died April 29, 1957.

Appointments and Resignations

Owen F. Aldis has been appointed instructor in economics at Yale University.

Alec P. Alexander, of the University of California, is assistant professor of economics at Northwestern University in the current academic year.

Kenneth O. Alexander has been promoted to assistant professor of economics in the Labor and Industrial Relations Center of Michigan State University.

Marcus Alexis, formerly of the University of Minnesota, has accepted an appointment as assistant professor at Macalester College, St. Paul.

Anker V. Andersen has been named instructor at the University of Minnesota.

Vojtech E. Andie has been appointed assistant professor of economics at the University of Pittsburgh.

Kenneth R. Andrews has been appointed professor of business administration in the Harvard Graduate School of Business Administration.

Eric Axilrod has been appointed acting assistant professor of business administration in the School of Business Administration of the University of California, Los Angeles.

Raymond Bailey has been promoted to assistant professor in the department of agricultural economics of Ohio State University.

John M. Baitsell has been appointed research associate in business administration in the Harvard Graduate School of Business Administration.

LeRoy A. Baker has been appointed instructor in accounting in the School of Business, University of Kansas.

John R. Bangs, formerly at Cornell University and then the Budd Company, Philadelphia, has been appointed visiting professor of management, University of Florida.

William J. Barber, formerly at Nuffield College, Oxford University, has been appointed assistant professor of economics at Wesleyan University.

Douglas C. Basil, formerly of Northwestern University, has joined the faculty of the University of Minnesota as associate professor.

Raymond A. Bauer has been appointed Ford Foundation Distinguished Research Professor in the Harvard Graduate School of Business Administration.

James F. Becker has been promoted from instructor to assistant professor of economics in the School of Commerce, New York University.

Lewis Bell has resigned from the University of Kentucky Bureau of Business Research to be the assistant director of purchasing in the Kentucky Department of Finance.

Arthur F. Belote, formerly of the University of Toledo, has been appointed interim instructor of management at the University of Florida.

Charles H. Berry has been promoted to assistant professor of economics at Yale University.

Robert C. Bingham has been promoted to assistant professor of economics in the department of economics of the College of Business Administration, University of Nebraska.

Jacob G. Birnberg has been appointed instructor at the University of Minnesota.

Mark Blaug has been promoted to assistant professor of economics at Yale University.

Forrest C. Blood has been named professor of business organization and management emeritus of the College of Business Administration, University of Nebraska.

Clark C. Bloom has been promoted from associate professor to professor of economics at the State University of Iowa.

August C. Bolino has been promoted from instructor to assistant professor of economics at Saint Louis University.

Alice Bourneuf has been granted a year's leave of absence from Mount Holyoke College to be visiting associate professor of economics at the University of California, Berkeley.

Roger L. Bowlby has been appointed instructor in economics at Iowa State University.

W. Donald Bowles has been appointed instructor in economics at the American University.

Iver E. Bradley has been appointed lecturer in economics in the College of Business, University of Utah.

Willem Brand is leaving the United Nations in order to accept a professorship in economics of nonwestern areas at Leyden University, The Netherlands. He wil also be a staff member of the Institute of Social Studies, The Hague.

Floyd S. Brandt has been appointed instructor in business administration in the Harvard Graduate School of Business Administration.

Ward C. Bray, of the University of Kansas, has accepted a position with Carter Oil Company in Tulsa, Oklahoma.

Harvey E. Brazer, of Wayne University, has been appointed associate professor of economics and research associate in the Institute of Public Administration, University of Michigan.

George F. Break, on leave from the University of California for the academic year 1957-58, is director of a research project of the National Planning Association.

John M. Brophy has resigned from the New York State School of Industrial and Labor Relations, Cornell University, to become head of the department of business administration of the University of Rochester.

Albert Buckberg has been appointed instructor in economics at Iowa State College.

Walter Buckingham, Jr., has been promoted to professor of economics in the School of Industrial Management, Georgia Institute of Technology.

John A. Buttrick is on leave from the University of Minnesota to teach at the University of California, Berkeley, in the current academic year.

Carl J. Cabe, of the University of Nebraska, is visiting associate professor in the department of economics, University of Illinois.

Emerson T. Cammack has been promoted from instructor to assistant professor in the department of economics, University of Illinois.

Burnham O. Campbell, of Stanford University, has been appointed instructor in the department of economics, University of Illinois.

Robert W. Campbell has been promoted from instructor to assistant professor of economics at the University of Southern California.

William D. Carmichael has been appointed lecturer in economics at Princeton University.

Rocco Carzo, Jr. has been appointed faculty lecturer in management in the School of Business, Indiana University.

Neil Chamberlain has been granted leave from the Graduate School of Business of Columbia University to become director of the Ford Foundation's Program in Economic Development and Administration. He will succeed Lloyd G. Reynolds, who has been on leave from Yale University during the past two years.

K. Laurence Chang has been appointed assistant professor of economics at Western Reserve University.

Samuel B. Chase of the University of California, has been appointed instructor in the department of economics at the University of Illinois.

Pao Lun Cheng has been appointed lecturer in economics at Michigan State University.

Shun-hsin Chou has been appointed associate professor of economics, University of Pittsburgh.

Charles J. Christenson has been appointed instructor in business administration in the Harvard Graduate School of Business Administration.

M. Gardner Clark has been promoted from associate professor to professor in the New York State School of Industrial and Labor Relations, Cornell University.

Joseph Clawson has resigned from the University of California at Los Angeles to accept a position with Alderson and Sessions, of Philadelphia.

John A. Cochran has resigned from the University of Illinois to join the staff of the department of economics at Southern Illinois University.

Edward Coen has been promoted from assistant professor to associate professor at the University of Minnesota.

Robert H. Cole has been appointed associate professor of business organization and management in the College of Business Administration, University of Nebraska.

Ralph E. Conwell has resigned as head of the department of economics, sociology and anthropology but continues as professor of economics at the University of Wyoming.

Sidney H. Coontz has been appointed associate professor of economics in the College of Business, University of Utah.

Morris A. Copeland has been appointed Robert Julius Thorne professor of economics at Cornell University. The chair has been vacant since the retirement of Harold L. Reed.

Darcy C. Coyle has been appointed assistant professor of business administration in the Harvard Graduate School of Business Administration.

Earl C. Crockett has resigned from the University of Colorado to accept the post of vice-president at Brigham Young University.

Ira B. Cross, Flood professor of economics, emeritus, received an honorary degree of LL.D. from the University of California, Berekley, in June 1957.

James A. Crutchfield is on leave from the University of Washington in the current academic year to be special consultant with the Food and Agricultural Organization of the United Nations in East Africa.

Malcolm M. Davisson is on leave from the University of California in the current academic year to be visiting professor at the University of Indonesia.

Merrill H. Devoe has been appointed visiting professor of marketing at the University of Kentucky.

Robert Dinman has returned to the University of Florida after spending a year at the University of Ceylon on a Fulbright appointment.

Evsey D. Domar, of the Johns Hopkins University, was visiting professor of economics at the Massachusetts Institute of Technology in the 1957 spring semester.

Laurence P. Dowd, formerly of the University of Washington and for the last two years Fulbright lecturer in foreign trade management at Kobe University, Japan, has accepted an appointment as lecturer in marketing and foreign trade in the School of Business Administration, University of Michigan.

Edgar S. Dunn, Jr. has returned to the University of Florida after spending a year on the staff of Resources for the Future, Washington, D.C.

Leroy Dunn, of Brown University, has been appointed assistant professor of economics at Trinity College.

Reed R. Durtschi has been appointed assistant professor of economics in the College of Business of the University of Utah.

Warren E. Eastlund has been promoted to lecturer at the University of Minnesota.

H. C. Eastman has been promoted to assistant professor in the department of political economy, University of Toronto.

J. Eayars has been promoted to assistant professor in the department of political economy, University of Toronto.

Harold Ecker has been appointed to the research and teaching staff of Ohio State University as instructor in the area of the agricultural policy.

William W. Ecton has been appointed instructor in accounting at the University of Kentucky.

Robert R. Edminster has been granted leave from the University of Utah to be assistant professor of economics at the University of California, Berkeley.

Alfred L. Edwards has been appointed instructor in economics at Michigan State University.

Otto H. Ehrlich has been promoted to professor of economics in the Graduate School of Arts and Science at New York University.

G. A. Elliott has resigned from the University of Toronto to accept an appointment to the Tariff Board of Canada, Ottawa.

James R. Elliott has been promoted to associate professor at Denison University.

William Emory has been promoted from associate professor to professor of marketing in the School of Business and Public Administration, Washington University.

Kenneth J. English has been promoted to instructor in business administration in the Harvard Graduate School of Business Administration.

Grover W. Ensley has resigned from his post as executive director of the Congressional Joint Economic Committee to become executive vice president of the National Association of Mutual Savings Banks.

John M. Ferguson has retired from teaching in the economics department of the University of Pittsburgh.

Robert H. Ferguson has been promoted from associate professor to professor in the New York State School of Industrial and Labor Relations, Cornell University.

E. I. Field, recently retired from Bernard Baruch School of Business, City College, is teaching at Los Angeles City College in the current academic year.

Lawrence Fisher has been appointed assistant professor of finance in the School of Business, University of Chicago.

Daniel O. Fletcher has been appointed instructor in economics at the University of Michigan.

V. C. Fowke has been appointed Harold Innis visiting research professor in the department of political economy, University of Toronto, for the year 1957-58.

W. M. Fox has been promoted from assistant professor to associate professor of industrial relations and management, University of Florida.

James B. Foxworth has been appointed research associate in business administration at Harvard Graduate School of Business Administration.

Marvin Frankel has been appointed visiting associate professor of economics at Stanford University.

William J. Frazer, Jr., formerly economist with the Federal Research Bank of New York, has been appointed assistant professor of finance, University of Florida.

Walter F. Frese has been elected professor of business administration at the Harvard Graduate School of Business Administration.

Milton Friedman, of the University of Chicago, will spend the current academic year at the Center for Advanced Study in the Behavioral Sciences, Stanford, California.

Jack E. Gelfand has resigned from Ithaca College to accept an appointment as assistant professor of finance in the School of Business and Public Administration, Temple University.

George S. Gibb, of the Harvard Graduate School of Business Administration, has been appointed editor of the *Business History Review*.

William P. Glade, formerly of the University of Texas, has been appointed instructor in economics at the University of Maryland.

Nicholas A. Glaskowsky, Jr. has joined the faculty of the University of Minnesota as a lecturer.

Ray A. Goldberg has resigned from the Harvard Graduate School of Business Administration.

Leland J. Gordon has resigned from the chairmanship of the department of economics of Denison University after serving twenty-six years. He will continued to serve as senior professor of economics.

W. M. Gorman has returned to the University of Birmingham, England, after spending the academic year 1956-57 at Iowa State College as visiting professor of econometrics and statistics and the summer term at the University of Minnesota teaching economic theory.

Benjamin Graham has been appointed visiting professor of finance in the School of Business Administration, University of California, Los Angeles, for the fall semester.

W. R. Graham has been appointed research associate in the department of political economy, University of Toronto, for the current academic year.

Leo Grebler has returned to the National Bureau of Economic Research after serving two years on the staff of the Council of Economic Advisers. He has also accepted an appointment as adjunct professor in the Graduate School of Business, Columbia University.

Peter Gregory has been appointed visiting assistant professor of economics at Yale University.

Yehuda Grunfeld has been appointed assistant professor of economics at the University of Chicago.

John G. Gurley has been appointed senior staff member of the Brookings Institution.

Jean C. Halterman has been promoted from assistant professor to associate professor of marketing in the School of Business, Indiana University.

Robert S. Hancock, formerly of the University of Illinois, has been appointed associate professor at the University of Minnesota.

Morrison Handsaker, of Lafayette College, is Fulbright lecturer at the University of Sheffield, England, in the current year.

Einar Hardin has been appointed assistant professor of economics at Michigan State University.

Ada M. Harrison, of Carleton College, has been awarded a national research professorship by the Brookings Institution.

D. G. Hartle has been appointed lecturer in the department of political economy, University of Toronto, for the year 1957-58.

Cecil B. Haver has been appointed research associate in agricultural economics at the University of Chicago.

Leon E. Hay has been promoted from assistant professor to associate professor of accounting in the School of Business, Indiana University.

Charles H. Hession, of Brooklyn College, has been awarded a national research professorship by the Brookings Institution.

Ralph W. Hidy has been elected Isidor Straus professor of business history at the Harvard Graduate School of Business Administration.

George W. Hilton has been promoted to assistant professor of economics at Stanford University.

Randall Hinshaw has been appointed visiting professor of economics at Yale University.

J. E. Hipp has been promoted from instructor to assistant professor of insurance and business law, University of Florida.

Albert O. Hirschman has been reappointed visiting research professor of economics at Yale University.

Jack Hirshleifer has been appointed associate professor of business economics in the School of Business of the University of Chicago.

Morton Hoffman, who has been director of research and statistics of the Housing Authority of Baltimore, has been appointed director of research and analysis of the newly created Baltimore Urban Renewal and Housing Agency.

Daniel M. Holland has been promoted to associate professor of economics in the School of Commerce, New York University.

T. Edward Hollander has been appointed instructor in economics at the University of Pittsburgh.

Robert J. Holloway has been promoted from associate professor to professor at the University of Minnesota.

O. P. F. Horwood has been appointed professor of economics in the University of Natal.

David B. Houston has been appointed acting assistant professor of insurance in the School of Business Administration, University of California at Los Angeles.

Hendrik S. Houthakker has been promoted to professor of economics at Stanford University. He is on leave in the current academic year to teach in the department of economics at Massachusetts Institute of Technology.

Marshall C. Howard, of the University of Massachusetts, was visiting associate professor of economics at Amherst College in the second semester of 1956-57.

Stanley E. Howard retired in July as emeritus professor of economics at Princeton University.

William Howard has been promoted from associate professor to professor of insurance, University of Florida.

Herbert B. Howell has been promoted to professor of economics at Iowa State College.

James M. Hund, formerly of Clark University, has joined the faculty of Emory University as associate professor of business administration.

Virginia R. Huntington has been appointed instructor in accounting in the School of Business, University of Kansas.

Robert K. Jaedicke has been promoted to assistant professor in the University of Minnesota.

Phillip S. James has been promoted to assistant professor of economics and insurance in the College of Business Administration at the University of Nebraska.

George Jaszi has been appointed visiting professor of economics at Stanford University for the autumn quarter.

Alan H. Johnson has been promoted to an instructorship at the University of Minnesota.

Ethel B. Jones has been appointed research associate in economics at Iowa State College.

Kenneth M. Kauffman has been appointed instructor in economics at Wellesley College.

John H. Kaufmann has been named vice president in charge of the recently opened Washington office of Boni, Watkins, Jason & Co.

Bernard Kemp has been appointed assistant professor of economics at Michigan State University.

Charles J. Kennedy has been promoted to professor of economics in the College of Business Administration, University of Nebraska.

Reuben Kessel has resigned from the University of California, Los Angeles, to accept an appointment as assistant professor of economics at the University of Chicago.

Wylie Kilpatrick is again research professor on the staff of the Bureau of Economic and Business Research, University of Florida, after spending a year as executive secretary for the Florida Citizens Tax Council.

Paul T. Kinney, of the University of California, Los Angeles, is now instructor in economics at the University of Illinois.

Israel M. Kirzner has been appointed assistant professor of economics in the School of Commerce, New York University.

William A. Knoke has been promoted from associate professor to professor of marketing at the State University of Iowa.

Frederick Kohlmeyer, of the University of Minnesota has been appointed assistant professor in the department of economics, University of Illinois.

Stanley M. Kolsan, formerly with Republic Steel Corporation, is now statistician in market research with General Merchandise Company, Milwaukee.

Lawrence B. Krause, formerly of Harvard University, has been appointed instructor in economics at Yale University.

Mordechai Kreinin has been appointed assistant professor of economics at Michigan State University.

Daniel H. Kruger has been appointed assistant professor of economics and in the Labor and Industrial Relations Center at Michigan University.

Ernst W. Kuhn has been promoted to associate professor rather than professor of economics, at the University of Wyoming, as reported in the June number of this *Review*.

Robert Lampman, of the University of Washington, is on the staff of the National Bureau of Economic Research in the current year.

Charles P. Larrowe has been promoted to associate professor of economics at Michigan State University.

Roy L. Lassiter has been promoted from instructor to assistant professor of economics at the University of Florida.

Don Leatherman has resigned from the School of Business, Indiana University, to accept an appointment at Ohio State University.

Leland C. Lehman has been named chairman of the department of economics at Denison University.

Abba P. Lerner, of Roosevelt University, is visiting professor of economics at the Johns Hopkins University in the current academic year.

Charles L. Leven, of Northwestern University, has been appointed assistant professor of economics at Iowa State College.

H. Gregg Lewis has been promoted to professor of economics at the University of Chicago.

Robert W. Lewis has been appointed instructor in business administration at the Harvard Graduate School of Business Administration.

Edward R. Livernash has been elected professor of business administration in the Harvard Graduate School of Business Administration.

Julius S. Livingston has been elected professor of business administration in the Harvard Graduate School of Business Administration.

Wallace Longergan has been appointed instructor in industrial relations in the School of Business of the University of Chicago.

Dudley G. Luckett has been appointed instructor in economics at Iowa State University.

Harold I. Lunde, formerly of the University of Minnesota, has been appointed assistant professor at Macalester College.

Chris J. Luneski has been appointed instructor in the University of Minnesota.

Myles L. Mace, formerly of the Harvard Graduate School of Business Administration, is now vice president of Litton Industries, Inc., California.

Josef Macek retired from the economics department of the University of Pittsburgh in June.

John E. Maher, of DePauw University, has been appointed assistant professor of economics at Wesleyan University.

Alan Mandelstamm, of the University of Michigan, has been appointed instructor in economics at Northwestern University.

Fritz Karl Mann, of American University, taught at the 1957 summer semester of the University of Cologne, Germany.

Alan S. Manne has been appointed associate professor of economics at Yale University.

Theodore F. Marburg has resigned from Hamline University and accepted an appointment as professor in the department of economics, Marquette University.

Shelley M. Mark has been promoted to associate professor of economics at the University of Hawaii.

Jesse W. Markham has been promoted to professor of economics at Princeton University.

Martin V. Marshall has been promoted to associate professor of business administration at the Harvard Graduate School of Business Administration.

Thomas Martinsek has been appointed assistant professor of economics at Montana State University.

Joseph L. Massie has been appointed associate professor of commerce at the University of Kentucky.

Arthur J. Matson has been appointed instructor in economics at Iowa State College.

Gilbert P. Maynard has been promoted from associate professor to professor of accounting at the State University of Iowa.

Robert B. McCosh has resigned from the School of Business of Indiana University to return to the University of Denver.

Robert B. McKersie has been promoted to research associate in business administration in the Harvard Graduate School of Business Administration.

Ronald I. McKinnon has been appointed instructor at the University of Minnesota.

Walter W. McMahon, of the University of Iowa, has been appointed assistant professor in the department of economics, University of Illinois.

Maurice McManus, formerly of the Massachusetts Institute of Technology, is lecturer at the University of Minnesota.

Clarence E. McNeill has been appointed professor of economics emeritus in the College of Business Administration, University of Nebraska.

Robert C. Meier, formerly of the University of Minnesota, has been appointed acting assistant professor at the University of Washington.

Frank Meissner has been appointed analyst in the market research department of Crown Zellerbach Corporation, San Francisco. He is also instructor in business statistics at Golden Gate College.

Eugene R. Melander has been appointed instructor at the University of Minnesota.

Emil Mesics is visiting professor in the New York State School of Industrial and Labor Relations, Cornell University.

Raymond F. Mikesell, of the University of Virginia, has been appointed Miner professor of economics at the University of Oregon.

Robert T. Miki, formerly of the University of Minnesota, has been appointed instructor in economics at Williams College.

Taulman A. Miller has been promoted from associate professor to professor of economics at Indiana University.

Edwin J. Mills, formerly of the University of Birmingham, and the Massachusetts Institute of Technology, has been appointed assistant professor of political economy at the Johns Hopkins University.

John B. Minick has been promoted to assistant professor of business organization and managament in the College of Business Administration, University of Nebraska.

Franco Modigliani, on leave from Carnegie Institute of Technology, is at Harvard University this year.

Johan E. Moes, formerly of the University of Minnesota, has been appointed assistant professor at the University of Virginia.

John M. Montias, formerly of Columbia University, has been appointed instructor in economics at Yale University.

Dan M. Moose has been appointed instructor in economics at DePauw University.

Chester A. Morgan has been promoted from assistant professor to associate professor of labor and management at the State University of Iowa.

Thomas J. Morison, formerly of the University of Minnesota, has been appointed to the faculty in economics at Carleton College.

F. W. Morrissey has been appointed assistant professor of economics at Michigan State University.

Edward Morrison has been appointed faculty lecturer in management in the School of Business, Indiana University.

N. H. Morse has been appointed research associate in the department of political economy in the University of Toronto.

Albert Mossawir has been appointed instructor in economics at Wesleyan University.

Mary E. Murphy has been granted leave from Los Angeles State College to become the first director of research of the Institute of Chartered Accountants in Sydney, Australia.

Powell Niland, formerly of Harvard Graduate School of Business Administration, has been appointed associate professor of management in the School of Business and Public Administration, Washington University.

James W. Noehl has been named instructor at the University of Minnesota.

Hugh S. Norton, formerly of the University of Maryland and U. S. Department of Agriculture has been appointed associate professor of transportation at the University of Tennessee.

Walter Y. Oi has been appointed instructor in economics at Iowa State College.

Robert F. Olberding has resigned from the University of Nebraska to accept an appointment at the University of Wichita.

Alden C. Olson has returned to the University of Minnesota as a lecturer after spending two years at the University of Illinois and another year as visiting economist at the Federal Reserve Bank, Minneapolis.

Oscar A. Ornati has resigned from the New York State School of Industrial and Labor Relations, Cornell University, to accept an appointment as associate professor, New School for Social Research.

Charles D. Orth, III has been appointed assistant professor of business administration in the Harvard Graduate School of Business Administration.

David W. Ortlieb has been appointed faculty lecturer in business administration in the School of Business, Indiana University.

Clifford F. Owen has been appointed acting assistant professor of economics at the University of Virginia.

David L. Paden has resigned from the School of Business, Indiana University, to accept an appointment at Stanford University.

Ernest F. Patterson has resigned from the University of Alabama to accept an appointment as associate professor of economics at Davidson College.

Jeanne S. Pearlson, formerly economist with the Allied Chemical and Dye Corporation, has been appointed assistant professor of economics at the American University.

Edith T. Penrose has been granted a year's leave of absence from the Johns Hopkins University to be visiting lecturer at Baghdad University, Iraq.

John E. Perkins has resigned from Northwest Missouri State College to accept an appointment as associate professor at Arlington State College, Texas.

Charles A. Peterson, formerly of Kansas State Teachers' College, has been appointed instructor in the University of Minnesota.

Wallace C. Peterson has been promoted to associate professor of economics in the College of Business Administration, University of Nebraska.

Robert B. Pettengill has accepted an appointment as professor of economics at Rollins College.

Rolf Piekarz has been appointed lecturer in economics at Hofstra College.

Robert Pierson, of Northwestern University, has been appointed instructor in economics at Purdue University.

Jack Pontney, of Northwestern University, has been appointed instructor in economics at the University of Southern California.

J. Porter has been appointed research associate in the department of political economy in the University of Toronto.

Richard C. Porter has been appointed instructor in economics at Yale University.

M. L. Pye has resigned from the University of Florida to accept a position in the accounting department of Bethlehem Steel Company.

L. L. Qualls has been promoted from assistant professor to associate professor of economics in the University of Florida.

Howard Raiffa has been appointed associate professor of business administration in the Harvard Graduate School of Business.

Melvin W. Reder, of Stanford University, is at the Center for Advanced Study in the Behavioral Sciences this year.

William C. Reher has been appointed assistant professor of economics at the University of Kansas City .

Edward F. Renshaw has been appointed research associate in agricultural economics at the University of Chicago.

J. G. Richardson has been promoted from assistant professor to associate professor of finance, University of Florida.

Richard W. Richardson has resigned from Hamilton College to accept an appointment as assistant professor of economics at Princeton University.

Raymond Richman is on a year's leave of absence from the University of Pittsburgh to serve with the Organisation for European Economic Co-operation.

John W. Riegel, formerly of Harvard University, has been appointed instructor in economics at Yale University.

Gaston Rimlinger has been promoted to assistant professor of economics at Princeton University.

Winnie D. Robbins has been appointed lecturer in business administration in the Harvard Graduate School of Business Administration.

Ross M. Robertson has been appointed associate professor of business administration and director of Business History Studies, in the School of Business, Indiana University.

Richard D. Robinson has been appointed lecturer in business administration in the Harvard Graduate School of Business Administration.

William G. Rodger has been appointed visiting professor of accounting in the School of Business Administration, University of California, Los Angeles.

Theodore W. Roesler has been appointed assistant professor of economics and statistics in the College of Business Administration, University of Nebraska.

Charles L. Rolando has been appointed intructor at the University of Minnesota.

Richard S. Rosenbloom has been promoted to instructor in business administration at the Harvard Graduate School of Business Administration.

Richard N. Rosett has been appointed instructor in economics at Yale University.

Jerome Rothenberg has been appointed assistant professor of economics at the University of Chicago.

Marvin E. Rozen has been promoted to acting assistant professor of economics at Stanford University.

Lawrence E. Rudberg, formerly of the University of Minnesota, has been appointed assistant professor at Wayne University.

Robert Saltonstall has resigned from the Harvard Graduate School of Business Administration to accept a position with the Management Development Institute of the Nestle Alimentana Company in Lausanne, Switzerland.

Arnold W. Sametz has resigned from Princeton University to accept an appointment as associate professor of economics at New York University.

Dorothy Z. Sanford has been appointed assistant professor of economics at the College of Notre Dame, Belmont, California.

Kenneth Sanow, who has been chief of the analysis section of the Navy Transportation Service, has transferred to the Office of Special Studies, National Science Foundation.

Donald H. Sauer has been appointed faculty lecturer in finance, School of Business, Indiana University.

I. Richard Savage, formerly of Stanford University, has been appointed associate professor at the University of Minnesota.

Thomas C. Schelling has been promoted to professor of economics at Yale University.

James S. Schindler has been promoted from associate professor to professor of accounting in the School of Business and Public Administration, Washington University.

Jacob Schmookler, formerly of Michigan State University, has joined the faculty of the University of Minnesota as associate professor.

Sterling H. Schoen has been promoted from associate professor to professor of management in the School of Business and Public Administration, Washington University.

George P. Schultz has been appointed professor of industrial relations in the School of Business, University of Chicago.

Howard Schultz has resigned from his post as instructor in economics at the University of Pittsburgh.

J. T. Scott has been promoted from instructor to assistant professor of economics at Iowa State College.

John A. Seiler has been promoted to assistant professor of business administration in the Harvard Graduate School of Business Administration.

Ansel M. Sharp has resigned from the University of Cincinnati to accept an appointment as assistant professor of economics in the School of Business, Oklahoma State University.

S. W. Shaw, formerly of the University of Florida, has been appointed associate professor of marketing at the University of South Carolina.

Fred C. Shorter has been appointed assistant professor of economics at the California Institute of Technology.

Barry N. Siegel has been appointed assistant professor of economics in the College of Business Administration, University of Utah.

Ben D. Simpson has been appointed instructor in accounting in the School of Business, University of Kansas.

Fred Slavick has resigned from the New York State School of Industrial and Labor Relations, Cornell University, to accept an appointment as assistant professor, State University of Iowa.

Mervin G. Smith, of the Ohio State University, has been in South and Central America during the summer aiding in developing teaching programs in the field of agricultural finance in several South American universities.

Paul E. Smith has been appointed instructor in economics at the University of Michigan.

Stanton R. Smith has been appointed lecturer in economics in the College of Business, University of Utah.

Warren L. Smith, of the Ohio State University, has been appointed associate professor of economics at the University of Michigan.

Ezra Solomon has been promoted to professor of finance in the School of Business, University of Chicago.

Babette Solon has been appointed lecturer in economics at Hofstra College.

Harold S. Spear has been appointed research associate in business administration in the Harvard Graduate School of Business Administration.

Eldred C. Speck has resigned from the University of Kentucky to join the faculty of McNeese State College.

Edwin H. Spengler, of Brooklyn College, is Fulbright lecturer at the University of Copenhagen this year.

Corydon P. Spruill has returned to full-time teaching as professor of economics after having served as dean of the faculty of the University of North Carolina for the past three years.

Peter O. Steiner, of the University of California, Berkeley, has accepted an appointment at the University of Wisconsin.

Herbert F. Stewart has been appointd lecturer in business administration in the Harvard Graduate School of Business Administration.

Donald L. Strand has been promoted from instructor to lecturer at the University of Minnesota.

W. Paul Strassmann has been promoted to assistant professor of economics at Michigan State University.

Adam K. Stricker, Jr. now has a private practice as professional engineer and management consultant.

Jerome C. Strong has been appointed instructor in economics at Princeton University.

Adolf Sturmthal, of Roosevelt University, is visiting professor at the Graduate School of Business, Columbia University, in the current year.

S. Stykolt has been promoted to assistant professor in the department of political economy in the University of Toronto.

Renato Tagiuri has been appointed lecturer in business administration in the Harvard Graduate School of Business Administration.

James N. Tattersall has been appointed instructor in economics at the University of Oregon.

Norman W. Taylor has been appointed instructor in economics at Yale University.

Clemens B. Thoman has been promoted to associate professor of economics in the College of Business Administration, University of Nebraska.

Robert W. Thomas, Jr. has been appointed instructor in economics at Iowa State College.

Kenneth M. Thompson has been appointed lecturer in personnel management and industrial relations in the School of Business Administration, University of California, Los Angeles.

Erik Thorbecke has been appointed assistant professor of economics at Iowa State College.

George P. Torrence has retired from the faculty of the School of Business Administration, Emory University.

Ralph N. Traxler, of the University of Florida, has joined the faculty of the School of Business Administration, Emory University, as assistant professor of business administration.

Jack L. Turner has transferred from the department of agricultural economics to the department of horticulture at the Alabama Polytechnic Institute.

Arthur R. Upgren has resigned from Dartmouth College, to become Frederic R. Bigelow professor of economics and director of the Bureau of Economic Studies at Macalester College, St. Paul, Minnesota.

Harold G. Vatter, of the University of Massachusetts, was visiting associate professor of economics at Amherst College in the 1957 spring semester.

Lewis E. Wagner, of the University of Iowa, has been appointed associate professor in the department of economics, University of Illinois.

James E. Walter has been appointed associate professor of business administration in the Harvard Graduate School of Business Administration.

Benjamin N. Ward has been appointed assistant professor of economics at Stanford University.

Leonard L. Watkins, professor of economics at the University of Michigan, retired in June.

A. Watson has been appointed lecturer in the department of political economy, University of Toronto.

Marshall D. Wattles has been appointed assistant dean of the College of Liberal Arts, University of Oregon.

Harold W. Watts has been appointed instructor in economics at Yale University.

J. W. Weech has been appointed interim instructor in marketing at the University of Florida.

Hans M. Weingartner has been appointed instructor in industrial economics in the School of Business, University of Chicago.

Stanislaw H. Wellisz has been appointed assistant professor of business economics in the School of Business, University of Chicago.

Paul J. Wells, formerly at the RAND Corporation, has been appointed instructor in economics at the University of Illinois.

Merle T. Welshans has been promoted to professor of finance in the School of Business and Public Administration, Washington University.

Thomas E. White has been promoted from assistant professor to associate professor of economics at Hampton Institute.

Elmus R. Wicker has been promoted from instructor to assistant professor of economics at Indiana University.

John P. Williamson has been appointed assistant professor of business administration in the Harvard Graduate School of Business Administration.

George W. Wilson has been appointed assistant professor of transportation in the School of Business, Indiana University.

Milton Wilson has been appointed visiting professor of business administration in the Harvard Graduate School of Business Administration.

D. M. Winch has been appointed research associate in the department of political economy in the University of Toronto.

Alan R. Winger has been appointed instructor in economics at the University of Michigan.

Taro Yamane has been appointed assistant professor of economics in the School of Commerce, New York University.

Leland B. Yeager has been appointed assistant professor of economics at the University of Virginia.

FIFTY-FOURTH LIST OF DOCTORAL DISSERTATIONS IN POLITICAL ECONOMY IN AMERICAN UNIVERSITIES AND COLLEGES

The present list specifies doctoral degrees conferred during the academic year terminating June 1957, and theses undertaken in the same period.

Price and Allocation Theory; Income and Employment Theory; Related Empirical Studies; History of Economic Thought

Degrees Conferred

PAUL S. ANDERSON, Ph.D. Minnesota 1957. An empirical test of the acceleration principle: a study of the relationship between gross property and sales.

FRANCIS M. BATOR, Ph.D. Mass. Inst. Technology 1956. Capital, growth and welfare: essays in the theory of allocation.

SHERRILL CLELAND, Ph.D. Princeton 1957. The influence of firm and plant size on industrial relations: implications for the theory of the firm.

JOSEPH W. CONARD, Ph.D. California 1956. Studies in the theory of interest.

THOMAS F. DERNBERG, Ph.D. Yale 1957. Consumer response to innovation: the television industry.

JOHN E. ELLIOTT, Ph.D. Harvard 1957. Toward a more generalized theory of economic planning in a free society: a critique of the planning models of Friedrich Hayek, J. M. Keynes, and Oskar Lange.

CHARLES E. FERGUSON, Ph.D. North Carolina 1957. Welfare analysis of workable competition.

BENNETT FINLER, Ph.D. American 1957. Analysis of capital consumption and replacement: implications for the national income accounts, entrepreneurial accounting, financial analysis, fiscal policy, saving, capital formation and income theory.

JOHN N. FRY, Ph.D. Texas 1957. The process of economic growth according to the English mercantilists.

PETER M. GUTMANN, Ph.D. Harvard 1957. Income distribution, asset values and economic growth.

JOHN P. HENDERSON, Ph.D. Maryland 1956. A reinterpretation of Ricardo's theory of value.

ISRAEL M. KIRZNER, Ph.D. New York 1957. Development in the conception of economic science since 1900.

LOUIS LEFEBER, Ph.D. Mass. Inst. Technology 1957. External economies and transportations in the general equilibrium system.

LIONEL W. MCKENZIE, JR., Ph.D. Princeton 1956. Application of activity analysis to the theory of general equilibrium.

WALTER W. MCMAHON, Ph.D. Iowa 1957. A theoretical and statistical analysis of consumer investment.

MORTON PAGLIN, Ph.D. California 1956. Malthus and Lauderdale: the anti-Ricardian tradition.

RICHARD E. QUANDT, Ph.D. Harvard 1957. Stochastic elements in economic theory and statistical inference in input-output analysis.

WILLIAM C. REHER, Ph.D. Michigan 1957. A cross section analysis of contractual saving.

CHARLES M. TIEBOUT, Ph.D. Michigan 1957. The community income multiplier.

HAROLD W. WATTS, Ph.D. Yale 1957. The relation of consumer saving to long-run income anticipations.

EDWARD J. ZABEL, Ph.D. Princeton 1956. Concepts and measurement of productive capacity.

ARNOLD ZELLNER, Ph.D. California 1957. An empirical and theoretical analysis of short-run consumption functions.

Theses in Preparation

BARBARA BERMAN, B.A. Cornell 1948; M.A. Radcliffe 1955. Some aspects of the theory of wages. *Harvard.*

JOSEPH C. BLUMEL, B.S. Nebraska 1950; M.A. 1955. Empirical implications of interest and profit theories. *Oregon.*

HANS P. CARSTENSON, B.S. Ohio State 1937; M.B.A. 1938. An econometric model of the asparagus market. *Michigan.*

SAMUEL B. CHASE, III, B.A. Dartmouth 1954. The determination of asset prices. *California.*

RONALD L. CHERRY, B.A. Juniata 1953; M.A. Princeton 1955. The typical age of replacement theory: a case study. *Princeton.*

LUCY B. CREIGHTON, B.A. Smith 1949; M.A. Radcliffe 1952. Distribution, prices and consumer behavior. *Harvard.*

PAUL DAVIDSON, B.S. Brooklyn 1950; M.B.A. City (New York) 1955. A study of macroeconomic theories of distribution. *Pennsylvania.*

DONALD F. DIXON, B.A. Brown 1951; M.B.A. Wharton 1952. Price rigidities in vertical trade channels. *Pennsylvania.*

JACQUES H. DREZE, Lic. Liege 1951. Consumer choice under partially controllable uncertainty. *Columbia.*

YEHUDA GRUNFELD, B.A. Hebrew 1952; M.A. 1954. Determinants of corporate investment. *Chicago.*

RASOOL M. H. HASHIMI, Higher Teachers College (Iraq) 1944; M.A. Wisconsin 1953. Studies in functional income distribution. *Wisconsin.*

OSWALD HONKALEHTO, B.S. Mass. Inst. Technology 1950; M.S. 1955. Education and economic development: an allocation program. *Mass. Inst. Technology.*

ROBERT C. JONES, B.S. Pennsylvania 1949; M.B.A. 1955. The integration of ex ante variables in models of consumer behavior. *Pennsylvania.*

LOUIS J. JUNKER, B.A. Denver 1951; M.A. Connecticut 1953. The social and economic thought of C. E. Ayres. *Wisconsin.*

SISTER MARTHA JULIE KEEHAN, S.N.D., B.A. Trinity 1951; M.A. Catholic 1953. An analysis of the content and influence of the economic writings of George Tucker. *Catholic.*

SUSUMU KOIZUMI, B.A. Osaka 1953; M.A. Michigan 1956. Econometric models in the U.S. with the simple industrial relations. *Michigan.*

ANNE L. KRUEGER, B.A. Oberlin 1953; M.S. Wisconsin. Economic growth models, their applicability to the post-war American economy. *Wisconsin.*

HERBERT S. LEVINE, B.A. Harvard, 1950; M.A. 1952. Materials allocation in the Soviet Union. *Harvard.*

JOHN NEVILE, B.A. Western Australia 1953. Investment theory in modern dynamic economic models. *California.*

WILLIAM A. NISKANEN, JR., B.A. Harvard 1954; M.A. Chicago 1955. The demand for alcoholic beverages. *Chicago.*

JAMES H. NORBERT, B.A. Hamline 1951; M.A. Princeton 1953. The locational effects of delivered price systems. *Princeton.*

WALTER Y. OI, B.S. California (Los Angeles) 1952; M.A. 1954. Cyclical employment patterns. *Chicago.*

ELBERT RANDALL, B.A. Texas 1926. Dangers of full employment. *New York.*

KYOHEI SASAKI, M.A. Tokyo Imperial, 1944. Controversies over Marxist economic theory in Japan. *Columbia.*

FREDERICK C. SCHADRACK, JR., B.A. Buffalo 1952; M.A. California 1954. The determinants of expenditures on commercial construction in the United States, 1920-55. *California.*

HERMANN STOLLER, Dipl. in Econ. Munich 1952; M.A. Florida State 1956. The very short run in economic analysis. *Virginia.*

RICHARD S. THORN, B.A. Columbia 1951; M.A. Maryland 1952. A study in economic adjustments to long-run and short-run changes in the wealth-income ratio. *Yale.*

DESIDER VIKOR, J.U.D. Franz-Joseph Univ. (Hungary) 1938; M.A. Washington 1955. Austrian Romantic school (Adam Müller, Spann and the present Universalists). *St. Louis.*

HAROLD W. WATTS, B.A. Oregon 1954; M.A. Yale 1955. The relation of consumer saving to long-run income anticipations. *Yale.*

SUZANNE E. WIGGINS, B.A. American 1951; M.A. Indiana 1955. An econometric study of interest rates, liquidity and manufacturers' fixed investment expenditure. *Indiana.*

WILLIAM P. YOHE, B.A. Kenyon 1953; M.A. Michigan 1954. The development of Swedish macro-economic theory. *Michigan.*

Economic History; Economic Development; National Economies

Degrees Conferred

ABAI NJOKU ABAI, Ph.D. Wisconsin 1957. Sources for capital formation for economic development in Nigeria.

FUAD ABDUL-KADIR ABDULLAH, Ph.D. Pennsylvania 1957. Productivity, industrialization, and economic growth in Egypt, Iraq, and Turkey.

ALEC P. ALEXANDER, Ph.D. California 1957. Economic change in Turkey, 1948-1955.

NICHOLAS BALABKINS, Ph.D. Rutgers 1957. Direct control of West German economy from surrender (1945) to currency reform (1948), with special reference to American policies.

MOIN UDDIN BAQAI, Ph.D. Kansas 1956. Some aspects of the relationship between fiscal and monetary policy in underdeveloped countries. A case study of Pakistan.

AUGUST C. BOLINO, Ph.D. St. Louis 1957. An economic history of Idaho Territory, 1863-1890.

ANTHONY J. BRZYSKI, Ph.D. New York 1957. The Lehigh Canal and its effect on the economic development of the region through which it passed—1818-1873.

BOURHAN CHATTI, Ph.D. American 1957. The fiscal system in Syria with emphasis on its role in the economic development of the country.

NIJMEDDIN IZZAT DAJANI, Ph.D. Wisconsin 1957. Economic appraisal of the Yarmuk Jordan Valley Project.

GEORGE R. ELLIOTT, Ph.D. Toronto 1957. Enterprise and empire in the North Pacific, 1785-1825.

MAX E. FLETCHER, Ph.D. Wisconsin 1957. Suez and Britain: an historical study of the effects of the Suez Canal on British economy.

ANDREAS GERAKIS, Ph.D. Kansas 1957. Economic development in Greece with special reference to the devaluation of the drachma and the liberalization of imports in 1953.

JAMES E. HIBBON, Ph.D. North Carolina 1956. The Tennessee Valley Authority—an economic evaluation.

LEWIS E. HILL, Ph.D. Texas 1957. An economic analysis of a historical concept.

GOPAL P. KHARE, Ph.D. Kansas 1956. An analysis of the first five-year plan of India, with reference to maximization of national income and actual physical achievements.

CHARLEY D. KIRKSEY, Ph.D. Texas 1957. An interindustry study of the Sabine-Neches area of Texas.

SILVA J. MARSHALL, Ph.D. Harvard 1957. Inflation and economic development (a case study: The Chilean experience 1937-1950).

FRANCIS B. MAY, Ph.D. Texas 1957. An interindustry relations analysis of the Texas economy for 1947.

GHOLAM REZA MOGHADAM, Ph.D. Stanford 1956. Iran's foreign trade policy and economic growth during the inter-war period.

HASSAN MURAYWID, Ph.D. Wisconsin 1957. The process of economic development in Syria, the growing role of the government.

GEORGE G. S. MURPHY, Ph.D. Washington 1957. The economic development of the Outer Mongolian economy in recent times.

PIUS N. OKIGBO, Ph.D. Northwestern 1956. Capital formation in a developing economy.

DUVVURI VENKATA RAMANA, Ph.D. Chicago 1956. Money, investment and income of India: 1914-1950.

YUSIF SAYIGH, Ph.D. Johns Hopkins 1957. Entrepreneurship and development: private, public, and joint enterprise in underdeveloped countries.

BARRY N. SIEGEL, Ph.D. California 1957. Inflation and economic development: studies in the Mexican experience.

CHARLES F. STEWART, Ph.D., California 1956. Economic change in a plural society: Morocco since 1912.

W. PAUL STRASSMAN, Ph.D. Maryland 1956. Risk and technological innovation in the United States during the nineteenth century.

THALERNG THAMRONG-NAWASAWAT, Ph.D. Wisconsin 1957. Selected aspects of the role of primary exports in the economic development of Southeast Asia.

PETER R. TOSCANO, Ph.D. Chicago 1956. Economic thought and policy in Tuscany and Milan, 1737-1790.

MEENASKSHI TYAGARAJAN, Ph.D. Kansas 1957. Entrepreneurship as a factor in economic growth and development: A historical and analytical approach.

HARCHARAN LAL UPADHYAYA, Ph.D. Wisconsin 1957. Industrial development of India: human resources and their utilization.

BENJAMIN N. WARD, JR., Ph.D. California 1956. From Marx to Barone: the new socialism and the industrial firm in postwar Yugoslavia.

Theses in Preparation

JOSEPH R. AMRHEIN, B.S. Mass. Inst. Technology 1944; M.B.A. Boston 1946. The economic history of Burlington, Vermont. *New York.*

LAWRENCE W. BARSS, B.A. Princeton 1950. Political growth and economic development: Japan, Turkey, Argentina and India. *Mass. Inst. Technology.*

J. J. BERNA, B.A. LaSalle 1941; Ph.L. St. Louis 1947. Entrepreneurship in Madras Province, India. *Columbia.*

GEORGE H. BOSSY, Lic. Grad. Inst. of Internat. Stud. Geneva 1950. Commercial policy and economic development with special reference to Japan, Brazil, and Australia from the middle of the 19th century to 1930. *Columbia.*

CARLOS M. CASTILLO, B.S. Liceo de Costa Rica 1946; M.S. Tennessee 1953. The economic integration of Central America. *Wisconsin.*

RICHARD CHANDLER, B.S. Thiel 1951; M.A. Pitt. 1955. The economic development of major metropolitan areas. *Pittsburgh.*

EVERETT L. COLWELL, B.S. Tampa 1952; M.B.A. Miami 1953. The economic development of Tampa. *Florida.*

LAMAR C. CURRY, B.A. Louisiana Polytech. 1932; Louisiana State 1939. The growth patterns of Northwest Louisiana since 1865. *Louisiana State.*

RAPHAEL DE JESUS-TORO, B.S. Pennsylvania; M.A. Syracuse. Inducing entrepreneurship in underdeveloped countries. *Syracuse.*

Guido Di Tella, B.S.E. Buenos Aires 1954. Economic history of Argentina (co-author with Manuel Zymelman). *Mass. Inst. Technology.*

L. A. Drewry, Jr., B.S. Virginia 1954; M.A. 1956. The Turkish inflation as a case study. *Virginia.*

Diedrich Dyck, B.S.A. Saskatchewan 1954; M.A. Nebraska 1955. An appraisal of the opportunities of economic development in the central sand area of Wisconsin. *Wisconsin.*

Edward G. Emerling, B.B.A. St. Bonaventure 1951; M.A. Catholic 1953. Community efforts at promoting economic development in New England area. *Catholic.*

Maurice C. Ernst, B.A. Yale 1948. Measurement of Polish industrial growth, 1937, 1946-55. *Columbia.*

Gustavo Escobar, B.A. California (Los Angeles) 1951. Problems of economic development in Venezuela. *California.*

Charles C. Frost, B.A. Tufts 1951; M.A. Fletcher School 1955. Freedom versus planning: the problem of optimum investment decisions in underdeveloped countries. *Fletcher School.*

Robert M. Gelman, B.A. New York 1942; M.A. Catholic 1956. Economic development of the Northern Frontier under a planned and a free economy: U.S.S.R. and Canada. *Catholic.*

Levern F. Graves, A.A. Compton 1950; B.A. California 1952. Direct international investment and its impact on economic development. *California.*

Mahbub Ul Haq, B.A. Punjab 1952; M.A. 1953; B.A. King's College, Cambridge 1955. Pakistan's first five-year plan. *Yale.*

Joseph E. Haring, B.S. Ohio State 1952. Capital imports, economic growth, and the balance of payment; the case of Puerto Rico. *Columbia.*

Eva Boenheim Hirsch, B.A. Michigan 1945; M.A. Columbia 1948. Incidence of costs and benefits of economic development in Turkey. *Columbia.*

Bong Hyok Kay, B.A. Korea 1952; M.A. Wisconsin 1955. The Republic of Korean tax system and its impact on economic development. *Wisconsin.*

Ivan Endras Lakos, B.A. Wisconsin 1953; M.A. Harvard 1956. A critical examination of the literature on external economies and of their significance in economic development. *Harvard.*

John D. Lehman, B.A. DePauw 1947; M.B.A. Chicago 1949. Influence of the progressive movement on economic development in Wisconsin. *Wisconsin.*

Marshall M. Levinson, B.S.S. City (New York) 1949; M.A. Columbia 1950. A rigorous formulation of Schumpeter's theory of development and cycles. Princeton.

Adnam J. Mardini, Lic. in Law, Syrian 1946. Monetary policy for economic development: a case study—Syria during the last decade. *American.*

Paul Medow, B.A. Cornell 1950. Modern nationalism and the appearance of native industrial entrepreneurship in the non-market society: The experience of Japan and of Russia. *Columbia.*

John M. Montias, B.A. Columbia 1947; M.A. 1950. Prices of producers' goods in postwar Poland. *Columbia.*

Russell L. Moran, B.A. California 1954. Trade nationalization: an instrument of national economic policy in the Philippines. *Cornell.*

Bernard Z. Orzech, B.S. California 1950. The role of economic fluctuations in the growth of the German economy, 1873-1914. *California.*

Gogula Parthasarathy, B.A. Andhra, India 1946; Madras 1949. Impact of commercialization on agriculture in India. *Wisconsin.*

Ann B. Rasmussen, B.A. Vassar 1953. Inflation as a source of economic development in Manchuria. *Columbia.*

Samuel M. Rosenblatt, B.S. Syracuse 1951; M.A. Rutgers 1952. Tobacco merchants of Virginia and London—late 18th century. *Rutgers.*

EZZEDIN M. SHAMSEDIN, B.A. Berea 1953; M.S. Alabama Polytechnic 1952. Some economic implications of the Litani River Project in Lebanon. *Florida.*

GEORGE STALLER, B.A. Hastings 1952; M.A. Cornell 1955. Postwar developments in Czechoslovakian industry. *Cornell.*

DONALD G. TAILBY, B.A. Rutgers, 1950; M.A. 1956. William Constable, New York merchant. *Rutgers.*

JAMES N. TATTERSALL. B.A. Washington 1954; M.A. 1956. The economic development of the Pacific Northwest, 1920-56. *Washington.*

FUAD HANNA TELLOW, Lic. Baghdad 1950; M.A. Southern California 1954. Private foreign investment as a possible aid for the economic and social development of Iraq. *Southern California.*

ALAN THAYER, B.S. West Point 1940; M.B.A. Harvard 1947. Economic problems of Formosa following World War II. *Pittsburgh.*

EDRIC A. WELD, JR. B.A. Harvard 1948; M.A. Yale 1954. Sources of capital funds for early Connecticut manufacturing industry 1800-60. *Yale.*

IVOR P. WOLD, B.A. Union 1934; M.A. Columbia 1939; M.A. Denver 1951. Economic development in Canada and Mexico: a comparative study. *Texas.*

E. F. YOUNG, B.A. Texas 1950. Behavior of real wages in early stages of economic development. *Columbia.*

MANUEL ZYMELMAN, B.S.E. Buenos Aires 1953; M.S. Mass. Inst. Technology 1956. Economic history of Argentina (co-author with Guido Di Tella. *Mass. Inst. Technology.*

Statistical Methods; Econometrics; Social Accounting

Degrees Conferred

ELEANOR C. HARRIS, Ph.D. New York 1957. Product development as an operation aided by statistical methods.

SEYMOUR MARSHAK, Ph.D. New York 1957. Night-openings: asset or liability? Suggested research methodology applied to Levittown, Pennsylvania trading area.

JOHN G. RANLETT, Ph.D. Oregon 1957. The theory and statistical approximation of regional multipliers.

Theses in Preparation

JOHN S. DECANI, B.S. Wisconsin 1948; M.B.A. Pennsylvania 1951. A probability model for time series forecasting. *Pennsylvania.*

RICHARD EDDE, B.S. New York 1950; M.B.A. 1951. Economic accounting history: historical development of national wealth and income. *Columbia.*

FRANKLEE GILBERT, B.A. Alabama 1949; M.S. North Carolina 1954. National income in the United States, 1790-1840. *North Carolina.*

W. LEE HANSEN, B.A. Wisconsin 1950; M.A. 1955. Life cycle patterns of income and intra-occupational variations in the distribution of income by size. *Johns Hopkins.*

EDWARD P. HOLLAND, B.S. Mass. Inst. Technology 1942. Analog simulation of a dynamic macro-economic system. *Mass. Inst. Tech.*

JOHN W. HOOPER, B.A. Stanford 1950. Quadratic programming: methods of solution and some applications to economics. *Stanford.*

PATRICK HUNTLEY, B.A. Washburn 1951; M.A. North Carolina 1955. State distribution of manufacturer's plant and equipment, 1954. *North Carolina.*

KIICHIRO KOGIKU, B.S. Denver 1954; M.S. Wisconsin 1957. A study in methodology of economic projection. *Wisconsin.*

RALPH V. LUCANO, M.A. Fordham 1940. Reconciliation of financial and national income accounting. *Fordham.*

MARION C. PHILLIPS, B.S. Tulsa 1948; M.B.A. Oklahoma 1950. Methods of estimating business and proprietor income in the counties of Oklahoma. *Oklahoma.*

HERMAN STEKLER, B.A. Clark 1955. Economic forecasting. *Mass. Inst. Technology.*

HARVEY M. WAGNER, B.S. Stanford 1953; M.S. 1954. Economic principles of scheduling processes. *Mass. Inst. Technology.*

Economic Systems; Planning and Reform; Cooperation

Degrees Conferred

ROBERT W. HAWKES, Ph.D. Mass. Inst. Technology 1957. Communication in cooperative and competitive groups.

Theses in Preparation

GEORGE J. NOVAK, Dipl. Goethe Univ. Frankfurt 1949. Planning of railroad freight traffic in the U.S.S.R. *Columbia.*

CHARLES J. TOBIN, M.A. Georgetown 1950. A theory of socio-economic organization. *Georgetown.*

Business Fluctuations

Degrees Conferred

GUY S. FREUTEL, Ph.D. Harvard 1957. Income and product analysis for an open regional economy—the Eighth Federal District.

FRANK W. GERY, JR., Ph.D. Boston 1957. Cyclical sensitivity among New England standard metropolitan areas—an examination of certain hypotheses.

DOUGLAS G. HARTLE, Ph.D. Duke 1957. Predictions derived from the employment forecast survey.

RICHARD M. HILL, Ph.D. Columbia 1957. Cyclical fluctuations in the management of retail inventories.

JACQUELINE R. KASUN, Ph.D. Columbia 1957. Some social aspects of business cycles in the Los Angeles area.

ROBERT A. LEVINE, Ph.D. Yale 1957. Investment intentions surveys and short-run forecasting.

LAWRENCE A. SKEOCH, Ph.D. California 1957. The amplitude of wholesale price movements and the duration of business cycles.

HENRY THOMASSEN, Ph.D. Nebraska 1956. The implications of business planning for economic stability in the United States.

Theses in Preparation

ALBERT K. ANDO, B.S. Seattle 1951; M.A. St. Louis 1953; M.S. Carnegie Inst. Technology 1956. A revision of business cycle theory. *Carnegie Inst. Technology.*

JOHN L. CORNWALL, B.A. Iowa 1950; M.Sc. London School 1952. Econometric models. *Harvard.*

EDWARD S. FLASH, JR., B.A. Cornell 1949; M.P.A. 1950. The Council of Economic Advisers as a presidential staff agency. *Cornell.*

FRANK W. GERY, JR., B.S. Temple 1950; M.B.A. Boston 1952. Business cycles in sixteen New England metropolitan areas, 1947-54. *Boston.*

RICHARD W. GRAVES, B.B.A. Texas 1949; M.B.A. 1951. European experience in meeting the price-wage spiral. *Indiana.*

HOWARD E. MITCHELL, B.A. Whitworth 1952; M.A. Washington 1954. The Employment Act of 1946 and the economic role of government: a study of trends in economic thinking and prescription as evidenced by government economic policy-makers, 1946, 1956. *Washington.*

Money, Credit and Banking; Monetary Policy; Consumer Finance; Mortgage Credit

Degrees Conferred

HOWARD K. AMMERMAN, Ph.D. Chicago 1956. Canadian devaluation, 1949.

WAYNE ANGELL, Ph.D. Kansas 1957. A century of commercial banking in Kansas.

ANDREW F. BRIMMER, Ph.D. Harvard 1957. Monetary policy, interest rates and investment behavior of life insurance companies.

ROBERT G. CONNORS, Ph.D. St. Louis 1955. Lessons for American monetary policy from analogous English experience.

ANTHONY COSTANTINO, Ph.D. California 1956. Monetary theory implicit in capital theory.

LANCE DAVIS, Ph.D. Johns Hopkins 1956. United States financial intermediaries in the early 19th Century: four case studies.

ROBERT C. EARNEST, Ph.D. Ohio State 1956. Growth and economic development of savings and loan associations in Wisconsin.

DAVID P. EASTBURN, Ph.D. Pennsylvania 1957. Real estate credit controls as a selective instrument of Federal Reserve policy.

SOBHI TADROS GERAISSA, Ph.D. Wisconsin 1957. The determination of the stock of money and the promotion of economic activities in Egypt.

JOHN B. HARBELL, Ph.D. California 1956. Industrial credit in Lebanon.

CLEMENT NYONG ISONG, Ph.D. Harvard 1957. Currency and credit in Nigeria 1850-1955.

JOHN H. KAREKEN, Ph.D. Mass. Inst. Technology 1956. Monetary policy and the public debt.

GORDON A. MCLEAN, Ph.D. New York 1957. Divided authority in monetary management.

CHARLES F. MEEHLING, Ph.D. New York 1957. Federal credit unions in the United States: an analysis.

WILLIAM PIGOTT, Ph.D. Washington 1956. Monetary and debt management policies during 1953-55.

RICHARD C. PORTER, Ph.D. Yale 1957. A liquidity theory of bank operations.

ABBAS SEDGHI, Ph.D. Southern California 1956. An analysis of the problem of the integration of monetary and fiscal policies.

LAWRENCE STARLIGHT, Ph.D. Harvard 1957. Monetary and fiscal policies in Communist China.

JOHN E. VAN TASSEL, JR., Ph.D. Harvard 1957. An analysis of banking behavior of United States banks.

NASROLLAH VAQAR, Ph.D. Kansas 1956. Liquidity of the assets of commercial banks in the United States, 1939-1953.

Theses in Preparation

JAMES B. BOULDEN, B.S. Illinois 1951; B.B.A. Baylor 1954, M.S. 1955. An organizational framework for commercial banks. *Indiana.*

JEROME CLIFFORD, L.Ph. Loyola 1943; L.S.T. West Baden 1950; M.B.A. Pennsylvania 1952. Issues relating to the independence of the Federal Reserve System. *Pennsylvania.*

LAWRENCE D. COLBURN, M.A. Kansas City 1950. Relationship between consumer credit, personal consumption expenditures and personal saving. *Fordham.*

JOHN R. COX, B.S. Indiana 1947; M.B.A. Chicago 1948. Institutional residential mortgage lending in Los Angeles County 1951-1956. *Southern California.*

RAY E. DAWSON, B.S. Illinois Inst. Technology 1948; M.S. 1951. The effects of general credit controls upon consumer finance companies, 1951-1954. *Northwestern.*

JOHN V. DEAVER, B.A. Mexico City 1948; M.A. 1949. The Chilean inflation, 1928-1955, a study in the demand for money. *Chicago.*

WILLIAM H. DESMONDE, B.A. New York 1945. The origin of ancient coinage in religious ritual. *New School for Social Research.*

HUGY R. ELLIOTT, B.A. Harvard 1950; M.A. Chicago 1952. Savings deposits as money. *Chicago.*

GEORGE GOODELL, B.A. Carroll 1943; M.B.A. Chicago 1947. A study of the role of trade credit in the financing of American industry. *Northwestern.*

PYO BYUNG HAN, B.B.A. Emory 1955; M.A. Duke 1957. Utility theory of money and its implications for monetary policy. *Duke.*

PAUL M. HORVITZ, B.A. Chicago 1954; M.A. Boston 1956. The structure of banking in New England: branches and mergers. *Mass. Inst. Technology.*

PAUL E. JUNK, B.A. Blackburn 1951; M.A. Washington (St. Louis) 1954. Availability of bank credit for financing small business. *Northwestern.*

FAWZI ABDULLA EL KAISSI, Lic. Baghdad 1951; M.A. Southern California 1954. A critical analysis of central banking in Iraq. *Southern California.*

JAMES K. KINDAHL, B.A. Chicago 1951; M.B.A. 1953. The period of the resumption in the United States 1865-1879. *Chicago.*

ALBERT LEVENSON, B.A. City (New York) 1953. The supply of funds to small firms. *Columbia.*

PATRICIA MAY, B.A. Tulane 1950; M.A. 1952. An evaluation of the operation of consumer credit controls, 1950-52; the Korean war experience. *Tulane.*

GEORGE MACESICH, B.A. George Washington 1953; M.A. 1954. Monetary disturbances in the United States, 1834-1845. *Chicago.*

HENRI J. L. PAELMAN, M.S. Columbia 1955. A macroeconomic study of interest. *Columbia.*

BELINDA K. PEARSON, B.A. Wellesley 1952; M.A. Fletcher School 1954. Commodity reserve currency and currency convertibility. *Fletcher School.*

KENNETH J. ROTHWELL, B.A. Western Australia, 1948; M.A. 1954. Impacts of international portfolio investments on monetary structures. *Harvard.*

ROBERT N. SCHWEITZER, B.A. Wabash 1952. The role of money in economic fluctuations: with reference to specific historical episodes. *California.*

JOYCE G. SKELLS, B.A. Temple 1954; M.A. Wisconsin 1955. Economic implications of reserve requirement policies. *Wisconsin.*

Public Finance; Fiscal Policy

Degrees Conferred

KENNETH G. AINSWORTH, Ph.D. Brown 1957. Federal grants-in-aid and state taxes: a study of their effect upon Maine industry.

ARNOLD L. BARRETT, Ph.D. Virginia 1957. State taxation of financial institutions.

J. FREDERICK BARRON, Ph.D. Washington 1957. Valuation of inventories for income tax purposes.

ELBERT V. BOWDEN, Ph.D. Duke 1957. Kentucky highway expenditures: a case study in the economic allocation of highway funds.

DWIGHT S. BROTHERS, Ph.D. Princeton 1957. Public policy toward tax depreciation allowances—a study of its influence on business decisions and the functioning of the economy.

JOHN E. CARLOCK, Ph.D. New York 1957. History and development of accounting control for federal expenditures.

VIRGIL L. CHRISTIAN, Ph.D. Kentucky 1956. An incremental analysis of highway expenditures in Kentucky.

WILLIAM F. DAMRAU, Ph.D. New York 1957. The rise of municipal hospital expenditures in New York City 1914-1954.

REED R. DURTSCHI, Ph.D. Washington 1957. Life insurance companies under the federal income tax.

JOHN R. FREDLAND, Ph.D. American 1957. The relevance of Keynesian theory to U.S. fiscal and monetary policy, 1945-1952.

SADUN LAWLAH HAMMADI, Ph.D. Wisconsin 1957. Agricultural taxation in Iraq.

CHARLES H. KAHN, Ph.D. Wisconsin 1957. Personal deductions in the individual income tax.

LOUISE P. LERDAU, Ph.D. Wisconsin 1957. Non-fiscal goals in the New Zealand tax system.

ADLY FAHMY ABDEL MEGUID, Ph.D. Wisconsin 1957. A comparative study in income tax administration—Great Britain and Egypt.

WILLIAM F. RAILING, Ph.D. Cornell 1957. History and development of the corporation income tax in New York.

RAYMOND L. RICHMAN, Ph.D. Chicago 1956. A contrast of American and British income taxation.

G. ALDEN SEARS, Ph.D. New York 1957. A survey and evaluation of alternatives in a strengthened local government revenue structure with special reference to Pennsylvania.

F. JOHN SHANNON, Ph.D. Kentucky 1956. The conflict between law and administrative practice in valuation of property for taxation in Kentucky.

ANSEL M. SHARP, Ph.D. Louisiana State 1956. A study of the countercyclical aspects of total government fiscal policy 1929-1940.

Theses in Preparation

NORMAN ADLER, B.B.A. City (New York) 1954; M.S. Wisconsin 1955. Income tax administration of wage and investment income. *Wisconsin.*

LEWIS C. BELL, B.A. Berea 1953. Third structure taxes: applicability for Kentucky. *Kentucky.*

WILLIAM B. BENTSEN, B.A. Denison 1950; M.A. Minnesota 1953. The taxation of capital gains and imputed income: the influence of traditional income concepts on their present treatment in the United States and Great Britain. *Wisconsin.*

BERNARD G. BROWN, B.A. City (New York) 1953. A study of the incidence of consumption taxation. *Wisconsin.*

ROBERT L. DARCY, B.A. Knox 1950; M.A. Indiana 1951. Municipal finance problems, with special attention to the income tax proposed for the City of Denver. *Colorado.*

JAMES J. DIAMOND, B.S. De Paul 1950; M.B.A. 1951; M.A. Northwestern 1957. A pure theory of local expenditures: an empirical test. *Northwestern.*

ALFRED L. EDWARDS, B.S. Livingstone 1948; M.A. Michigan 1949. The severance tax and state finances. *Iowa.*

DONALD L. ELLICKSON, B.A. Luther 1950; M.A. Wisconsin 1951. A history of land taxation theory. *Wisconsin.*

LOUIS FIER, B.A. Brooklyn 1947; M.A. 1949. The fiscal economics of state bonuses for veterans 1941-1957. *New York.*

WAYLAND D. GARDNER, B.A. Doane 1950; M.S. Wisconsin 1951. Taxation of farm income. *Wisconsin.*

GEORGE HANC, B.S. Columbia 1950; M.A. 1952. U. S. savings bonds and federal debt management. *Columbia.*

JAMES M. HEIDELL, B.S. Harvard 1935, LL.B. 1938; M.S. Columbia 1948. The purchase of tax exempt bonds by individuals in the 1946-1956 decade. *New York.*

SHANG PIAO KIANG, B.A. Hangchow Christian 1938; M.A. Colorado 1948. Colorado sales, service and gift taxes. *Colorado.*

SISTER CATHERINE THERESE KNOOP, B.A. Mount St. Mary's 1953; M.A. St. Louis 1954. Trends in the financial aspects of Old Age and Survivors Insurance. *California.*

SANG SOO KWAK, B.A. Park; M.A. Wisconsin 1956. Luxury taxes. *Wisconsin.*

HOWARD J. MCBRIDE, B.S. Illinois 1950; M.S. 1954. The federal excise tax on freight. *Illinois.*

CHUNG HIEH RIEW, B.A. Korea; B.S. Bridgewater; M.A. Wisconsin 1955. Thirty years of Wisconsin land taxation. *Wisconsin.*

GUY A. SCHICK, B.S. Purdue 1952; M.S. 1953. An analysis of the rule of taxation during the Chilean inflation, 1946-1956. *Harvard.*

PAUL E. SMITH, B.A. San Diego State. The impact of the corporation income tax on investment and its implications for changes in present tax policy. *Michigan.*

International Economics

Degrees Conferred

JOEL BERNSTEIN, Ph.D. Chicago 1956. The integration of the sterling payments system and the intra-European payments arrangements, embodied in the European Payments Union.

CALVIN P. BLAIR, Ph.D. Texas 1957. Fluctuations in United States imports from Brazil, Colombia, Chile, and Mexico, 1919-1954.

WILLIAM BRYAN, Ph.D. Wisconsin 1957. The economics of the Anglo-Iranian Oil dispute.

ANDRE L. DANIERE, Ph.D. Harvard 1957. Problems of commodity classification in international trade studies and factor analysis of international commodity trade.

HARRY E. ENGLISH, Ph.D. California 1957. The role of international trade in Canadian economic development since the 1920's.

SONIA S. GOLD, Ph.D. Pittsburgh 1956. The national development programs of the International Bank of Reconstruction and Development with special reference to the roles of government and private enterprise.

DUKH HARAN NATH GURTOO, Ph.D. Princeton 1956. India's balance of international payments, 1920 to 1953.

GEORGE A. HAY, JR., Ph.D. Mass. Inst. Technology 1956. Customs unions and efficiency of resource allocation.

KAREL HOLBIK, Ph.D. Wisconsin 1957. Economic liberalism in Italian foreign trade, 1946-53.

LEON HOLLERMAN, Ph.D. California 1957. Japanese national income and international trade; a structural analysis.

JOHN HUBER, Ph.D. Syracuse 1957. U. S. investment in foreign bonds, a study in international capital transfers.

HIROYA KATAYAMA, Ph.D. Wisconsin 1957. Japan's balance of international payments between 1924 and 1936.

CHI LING LEE, Ph.D. Wisconsin 1957. Criteria of a successful flexible exchange system.

GEORG MARAIS, Ph.D. Wisconsin 1956. Disequilibrium in the South African balance of payments between 1925 and 1952.

GUENTER H. MATTERSDORFF, Ph.D. Harvard 1957. Considerations for the economic integration of Western Europe.

JOHN R. MOORE, Ph.D. Cornell 1956. The impact of foreign direct investment on an underdeveloped economy: the Venezuelan case.

ROBERT A. MUNDELL, Ph.D. Mass. Inst. Technology 1956. Essays in the theory of international capital movements.

BERNARD NORWOOD, Ph.D. Fletcher School 1957. The "Buy American" policy: a study of U. S. Government preferential procurement.

ROBERT W. OLIVER, Ph.D. Princeton 1957. The origins of the International Bank for Reconstruction and Development.

THEODORE K. OSGOOD, Ph.D. Yale 1957. East-West trade controls.

GRANT L. REUBER, Ph.D. Harvard 1957. Britain's export trade with Canada.

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ELROY J. STEELE, Ph.D. Iowa 1957. Sources of development funds for Latin America with reference to the proposed Inter-American Bank for Economic Development.

MUNG-CHIO CHAO SUN, Ph.D. Michigan 1957. Japanese raw silk and American raw cotton.

HUGO A. WEISS, Ph.D. New York 1956. The tariff in policy and theory: trends in the United States since the 'twenties.

JOSEPH V. YAKOWICZ, Ph.D. New York 1957. Economic reconstruction, nationalization, and agrarian reform in postwar Poland.

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CHARLES E. BARRETT, B.A. Loyola 1942; M.A. Maryland 1950. German exchange experience since 1948. *Maryland.*

MARTIN R. BARRETT, B.A. Williams 1954. International trade and the monetary mechanism in underdeveloped countries. *Harvard.*

DALE L. CRAMER, B.S. Bradley 1950; M.A. 1951. Relationship between monetary and fiscal policy and external policy, and their effect upon the national income and price levels in Latin America. *Louisiana State.*

ALEXANDER M. GARCIA, B.A. New York 1949. The administration and operation of Western Hemisphere trade corporations. *New York.*

WILLIAM R. GARDNER, B.B.A. Oregon 1952; M.S. 1955. The Canadian dollar, 1950-1956: a case study of exchange rate stability in a free market. *Indiana.*

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SOBHI TADROS GERAISSA, B.S. Alexandria (Egypt) 1949; M.A. Chicago 1956. A study in the Egyptian exchange equation. *Wisconsin.*

GEOFFREY B. HAINSWORTH, B.S. London School 1952. The economic links of the Commonwealth, especially those relevant to the pattern of international trade in the association. *California.*

MITCHELL HARWITZ, B.A. Brandeis 1954. Problems in the dynamic theory of comparative advantage. *Mass. Inst. Technology.*

WILLIAM C. HOLLINGER, B.A. Swarthmore 1947. The international aspects of the Indonesian economy: their significance for development. *Mass. Inst. Technology.*

CLARK JOEL, B.A. George Washington 1949; M.A. 1949. A comparative study of foreign exchange control practices in selected countries. *Wisconsin.*

KENNETH M. KAUFFMAN, B.A. California 1952; M.A. Harvard 1955. Capital accumulation. *Harvard.*

DONALD B. KEESING, B.A. Harvard 1954; M.A. 1956. International trade and industry structure: their interrelation in economic development. *Harvard.*

FRANCIS A. LEES, B.A. Brooklyn 1948; M.A. St. Louis 1954. A critical analysis of the European Payments Union, from 1954 to the present. *New York.*

LAWRENCE F. MANSFIELD, B.A., B.S. Washington and Lee 1947; M.A. Florida 1948. The International Monetary Fund, 1945-1956. *North Carolina.*

SIEGRIED MARKS, B.A. British Columbia 1954. The multiple exchange rate system of Chile. *Vanderbilt.*

RUSSELL U. MCLAUGHLIN, B.S. Temple 1947; M.A. 1948. United States public and private investment in Liberia. *Pennsylvania.*

WALTHER P. MICHAEL, B.S. Columbia 1950. International capital movements and economic development (1950-1954). *Columbia.*

TURLEY R. MINGS, B.A. Occidental 1950. International ramifications of recent United State recessions. *California.*

AZIZALI F. MOHAMMED, B.A. Bombay 1947; M.A. Sind 1949. The impact of foreign aid upon underdeveloped countries. *George Washington.*

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SEH-HYUCK RYU, M.S. Waseda, Tokyo. The international balance of payments' problem of underdeveloped countries. *Cincinnati.*

ROBERT G. SCHROEDER, B.A. California M.A. 1953. Balance of payments implications of European integration. *California.*

DAVID SLATER, B.A. Queens (Ontario) 1947; M.A. Chicago 1950. The growth and structure of Canadian imports, 1926-55. *Chicago.*

EGON SOHMEN, M.B.A. Inst. Internat. Trade, Vienna 1952; Dr. rer. pol. Tübingen 1954. The economics of flexible exchange rates. *Mass. Inst. Technology.*

ROBERT M. STERN, B.S. California 1948; M.B.A. Chicago 1952. Trade, U. S. foreign aid, and agricultural surpluses. *Columbia.*

ERIK THORBECKE, B.A. Dutch School of Econ. 1951. The tendency toward regionalization in international trade. *California.*

LALGUDI S. VENKATARAMAN, B.A. Dehli 1950; M.A. 1952. A statistical study of Indian jute production and marketing with special reference to foreign demand. *Chicago.*

CORNELIS VISSER, B.A. California 1949; M.A. 1950. Japan's position in the changing pattern of world trade and payments, with particular reference to South and Southeast Asia. *California.*

KORNELIS WALRAVEN, B.A. Rochester 1954; M.A. Syracuse 1957. Netherlands foreign investment 1946-56. *Syracuse.*

PHILIP M. WOO, B.A. St. Francis 1952. Korea: an analysis of foreign policy in relation to economic rehabilitation and reconstruction, 1945-1955. *New York.*

WILLIAM J. WOODFINE, B.A. St. Francis Xavier 1951; M.A. McGill 1953. The adequacy of foreign exchange reserves. *Mass. Inst. Technology.*

Business Finance; Investment and Security Markets; Insurance

Degrees Conferred

FREDERICK AMLING, Ph.D. Pennsylvania 1957. Some aspects of timberland ownership in New England, the South and the Lake States for selected owners with specific reference to owners in New England.

JAMES A. BYRD, Ph.D. Texas 1957. Variable annuities.

OLIVER D. DICKERSON, JR., Ph.D. Pennsylvania 1957. Guaranteed renewable disability insurance.

LAWRENCE FISHER, Ph.D. Chicago 1956. Determinants of risk premiums on corporate bonds.

ROBERT E. KENNEDY, JR., Ph.D. Texas 1957. The concept of growth in the evaluation of common stocks as illustrated by the chemical products industry.

HOWARD C. LAUNSTEIN, Ph.D. Ohio State 1956. Accounting tools for management of casualty insurance companies.

FRED J. MUELLER, Ph.D. Ohio State 1956. Amortization of emergency facilities.

GIULIO PONTECORVO, Ph.D. California 1956. The stock exchange: its role at various stages of capitalist development.

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Barnie E. Abelle, B.S. Illinois 1951; M.S. 1953. Federal income taxation of life insurance companies. *Illinois.*

Oswald Bowlin, B.S. Texas A. & M. 1951; M.S. 1954. Factors affecting equity financing of American business corporations 1946-1955. *Illinois.*

Avery B. Cohan, B.A. Cornell 1934. The pricing of underwriters' services. *Columbia.*

Kenneth D. Courtney, B.A. Washington 1951; M.B.A. 1954. The intermediate-term financing of small retail business enterprises. *Ohio State.*

Myles S. Delano, M.A. Bates 1943; M.A. Boston 1947. A study of the performance of common stocks in selected industries during inflation and deflation. *Brown.*

Daniel E. Diamond, B.A. Massachusetts 1951. The economic impact of American life insurance investments on the economy. *New York.*

Philip M. Faucett, Jr., B.S. Illinois 1940; M.B.A. Harvard 1942. Interest rates and the allocation of investment funds. *Illinois.*

Gerald Gold, B.S. City (New York) 1948; M.A. Washington 1949. Analysis of hedging gains and losses in New York cottonseed oil failures 1937-1955. *Columbia.*

Crauford D. W. Goodin, B.A. McGill 1955; M.A. Duke 1957. The development of the Canadian capital market 1900-1930. *Duke.*

Richard W. Hooley, B.S. New York 1947; M.A. 1948. The natural gas industry; a study in the adaptability of life insurance investment policies. *Columbia.*

Marshall Kolin, B.A. Reed 1951; M.A. Chicago 1953. Investor valuation of corporate dividends and retained earnings. *Chicago.*

Jack McEnroe, B.A. Alfred 1950; M.A. Syracuse 1953. Investment theory and regulated industry. *Syracuse.*

John B. Minick, B.S. Temple 1943; M.A. Southern California 1954. A study of consumer credit insurance in Nebraska. *Southern California.*

Garnet D. Olive, B.A. Iowa State Teachers 1947; M.A. Iowa 1950. An analysis of dividend policies. *Iowa.*

Ralph C. Ringgenberg, B.A. Cornell 1947; M.B.A. Denver 1947. An analysis and evaluation of the substitution of income debentures for preferred stock in the capital structures of Class I railway companies. *Northwestern.*

Herbert Sim, B.A. City (New York); M.A. Undistributed profits and investment. *Syracuse.*

Jerome Snyder, B.B.A. City (New York) 1942; M.B.A. Pennsylvania 1950. Recent developments in the theory and practice of capital budgeting. *Michigan.*

Frank L. Turgeon, B.S. Georgetown 1951; M.B.A. New York 1952. An investment analysis of the common stocks of the domestic agricultural equipment industry. *New York.*

Bismarck Williams, B.A. Morehouse 1947; M.B.A. Atlanta 1950. Preferred stock refundings into debt in the post-war period. *Chicago.*

Grover Wirick, B.A. Michigan State; M.A. Michigan. The cost of equity capital to public utility companies. *Michigan.*

Business Organization; Managerial Economics; Marketing; Accounting

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Richmond O. Bennett, Jr., Ph.D. Texas 1957. Cost accounting and budgeting problems in aircraft manufacturing.

William Copulsky, Ph.D. New York 1957. Methods of forecasting chemical commodity demand.

Robert D. Entenberg, Ph.D. Ohio State 1956. The changing competitive position of department stores in the United States by merchandise lines.

Leo G. Erickson, Ph.D. Iowa 1957. Some aspects of the experimental approach in marketing, with particular reference to its role in pricing.

W. C. Flewellen, Jr., Ph.D. Columbia 1957. Current concepts on costs as a basis for depreciation.

Raoul J. Freeman, Ph.D. Mass. Inst. Technology 1957. Operational analysis of industrial research.

Charles E. Gilliland, Jr., Ph.D. Washington 1956. A simplified reconciliation of economic and accounting determinants of depreciation cost.

Guy G. Gordon, Ph.D. California 1957. The wholesaling potential of a satellite city.

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Louis T. Harms, Ph.D. Pennsylvania 1955. The introduction of office machines and employment of office workers in the United States, 1900-1950.

Robert K. Jaedicke, Ph.D. Minnesota 1957. The guaranteed annual wage and accounting for decision making.

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Floyd H. Jenkins, Ph.D. Ohio State 1957. A determination of the basic problems in foremanship.

Mervin Kohn, Ph.D. St. Louis 1957. The St. Louis merchant dry goods wholesaler in transition.

William Lazer, Ph.D. Ohio State 1956. An analysis and evaluation of the marketing of textile clothing by Western Canadian manufacturers.

Stewart M. Lee, Ph.D. Pittsburgh 1956. Some economic implications of resale price maintenance with particular attention to the discount house.

Edison A. Lynn, Sr., Ph.D. Florida 1957. "Standards" vs "principles" in the organization of industrial enterprises.

John P. Maggard, Jr., Ph.D. North Carolina 1957. Determining consumer shopping habits and opinions for local communities.

Hubert L. Menn, Ph.D. Texas 1957. Cost accounting and budgeting for state mental hospitals.

Kemper W. Merriam, Ph.D. Texas 1957. Cost accounting for the mining, milling, and smelting of copper ores.

David D. Monieson, Ph.D. Ohio State 1957. Value added as a measure of economic contribution by marketing institutions.

Robert W. Morell, Ph.D. St. Louis 1957. An inquiry into some aspects of managerial decision-making.

George S. Odiorne, Ph.D. New York 1957. A theory of informal organization considered as a branch of small group studies.

Eric C. Oesterle, Ph.D. Purdue 1957. A financial analysis of independent food stores in Indiana.

Henry D. Ostberg, Ph.D. Ohio State 1957. Functional discounts: their economic and legal implications.

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Myron H. Ross, Ph.D. Pennsylvania 1957. The economic structure of the Philadelphia parking market.

Bevie T. Sanders, Ph.D. Texas 1957. An examination of contemporary practices in accounting for intangible assets.

Robert J. Smith, D.B.A. Indiana 1957. An analysis of current theory and practice regarding the elements of cost included in inventory by manufacturers.

Robert T. Sprouse, Ph.D. Minnesota 1956. The effect of the concept of the corporation on accounting.

WILLIARD E. STONE, Ph.D. Pennsylvania 1957. Management practices with respect to internal transfer pricing in large manufacturing companies.

ARTHUR L. SVENSON, Ph.D. New York 1956. Early development of the theory of organization.

DONALD S. TULL, Ph.D. Chicago 1956. An examination of the hypothesis that advertising has a lagged effect on sales.

BROTHER LASALLE WOELFEL, Ph.D. Texas 1957. A comparative study of certain accounting institutions and practices in England and in the United States.

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ARTHUR T. ANDERSON, B.A. City (New York) 1954. Waste material reclamation in the American economy. *Harvard.*

GORDON E. BELL, B.B.A. Miami 1948; M.B.A. Florida 1950. The usefulness of various kinds of fixed cost information for selected managerial and other purposes. *Florida.*

WILMAR F. BERNTHAL, B.A. Valparaiso 1949; M.B.A. Michigan State 1950. Foreman's committee role in management. *Indiana.*

RAYMOND BUTEUX, B.S. New York 1946; M.B.A. 1949. On the indirect extension of advertising ideas. *New York.*

ROCCO CARZO, JR., B.S. Delaware 1951; M.S. Baylor 1953. A study of inventory decision-making in the management of selected industrial firms and its implications to aggregative inventory behavior. *Indiana.*

BUFORD A. CASEY, B.A. Bridgewater 1938; M.B.A. Harvard 1947. New products marketing in theory and practice. *Ohio State.*

ROBERT L. CLEWITT, B.A. California 1947; M.A. 1949. The economics of automobile distribution. *Michigan.*

KALMAN J. COHEN, B.A. Reed 1951; B.Litt. Oxford 1953; M.S. Carnegie Inst. Technology 1956. Mathematical models for optimal machine maintenance and replacement policies. *Carnegie Inst. Technology.*

ALFRED *A*. COX, B.S.E. Arkansas State Teachers 1949; M.B.A. Arkansas 1953. A study of the sales function by franchised automobile dealers in the marketing of new automobiles. *Ohio State.*

HAROLD DEMSETZ, B.S. Illinois 1953; M.B.A. Northwestern 1954. Product innovation and imitation in the food industries. *Northwestern.*

BRIAN DIXON, B.A. Manitoba 1950; M.Com. Toronto 1953. Implications of selected price discrimination cases on management price policy. *Michigan.*

H. ROBERT DODGE, B.S. Ohio State 1951; M.B.A. 1954. Incentive compensation for sales executives—a critical analysis and evaluation of incentives for sales executives. *Ohio State.*

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JAMES B. FOXWORTH, B.B.A. Chattanooga 1948; M.B.A. Pennsylvania 1949. The impact of electronic data processing in management processes. *Columbia.*

GEORGE FREY, B.S. New York 1947; M.B.A. 1950. Determination of the factors which affect sponsor identification in multiple sponsorship. *New York.*

HARRISON L. GRATHWOHL, B.S. Indiana 1951; M.B.A. 1951. The impact of trading stamps on retail advertising and pricing practices in Indianapolis, Indiana. *Indiana.*

FELIX KAUFMAN, B.A. Chicago 1942; M.B.A. 1943. Impact of electronic data processing on the audit function. *Chicago.*

BARKEV KIBARIAN, B.S. Rhode Island State 1950; M.B.A. New York 1952. A critical analysis of the costume jewelry industry. *New York.*

ROY A. KLAGES, B.S. Southeast Missouri State 1938; M.B.A. Texas 1945. An analysis and interpretation of the factors influencing the decentralization of the downtown department stores. *St. Louis.*

RONALD R. LARSON, B.A. Baker 1951; M.B.A. Indiana 1953. Trading stamp habits of Indianapolis families. *Indiana.*

EDISON A. LYNN, SR., M.E. Cornell 1912; M.B.A. Miami 1953. "Standards" vs "principles" in the organization of industrial enterprises. *Florida.*

MICHAEL Z. MASSEL, B.S. Michigan 1937; M.B.A. Northeastern 1940. A management development auditing device. *Northwestern.*

FREDERICK E. MAY, B.A. Michigan 1949; M.B.A. 1955. Attributes of car owners influencing their car purchasing behavior. *Michigan.*

BRUCE D. MCSPARRIN, SR., B.B.A. Oklahoma 1951; M.B.A. Indiana 1952. Organization of the production function. *Indiana.*

BORIS PARL, B.Econ., LL.B. Tartu (Stockholm) 1952; M.B.A. Northwestern 1940. A study of direct distribution in the shoe industry with particular reference to the factors determining the extent of manufacturer control of the distributive functions. *Northwestern.*

ALBERT C. PIERSON, B.A. Illinois 1935; M.B.A. Harvard 1947. Tourism. *Columbia.*

QUENTIN PONDER, B.S. Southwest Missouri State 1950; M.B.A. Tulsa 1952. The supervisory practices of foremen as related to criteria of effectiveness. *Columbia.*

VALENTINE F. RIDGWAY, B.S. Missouri 1948; M.S. 1950. Manufacturer-dealer relationships. *Cornell.*

JOHN A. RITCHEY, B.S. Purdue 1941; M.S. Mass. Inst. Technology 1946. Participational management through advisory boards. *Chicago.*

DONALD A. SCHRAMEK, B.B.A. Wisconsin 1948; M.B.A. Northwestern 1956. Statistical sampling and verification in auditing. *Northwestern.*

GEORGE SCHWARTZ, B.A. Brooklyn 1943. A critical analysis of the development of marketing thought. *Pennsylvania.*

LLOYD V. SEAWALL, B.B.A. Wake Forest 1953; M.B.A. Indiana 1954. An analysis of annual reports of selected American corporations for compliance with certain pronouncements of the American Institute of Accountants and an investigation of observable instances of noncompliance. *Indiana.*

MAX SNIDER, B.S. Illinois 1936; M.S. 1937; M.B.A. Stanford 1941. Location study—wholesale groceries, Bethlehem, Pennsylvania market area. *Pennsylvania.*

ANDREW C. STEDRY, B.S. Carnegie Inst. Technology 1956. Mathematical models of accounting and budgetary control systems. *Carnegie Inst. Technology.*

HENRY M. STEELE, B.S. Missouri 1949; M.A. 1950. An evaluation of the usefulness and limitations of accounting data adjusted for price level changes. *Indiana.*

DONALD C. STREEVER, B.S. Pennsylvania 1952; M.S. Illinois 1954. Relation of utilization of productive capacity to new business investment in plant and equipment. *Illinois.*

JOHN L. STRIKE, B.S. Utah 1947; M.B.A. Northwestern 1950. Universal approach to job evaluation. *Northwestern.*

ALLEN J. TWARK, B.S. Kent State 1953; M.B.A. 1954. Sales effort and its effect on the quantity sold. *Illinois.*

LOUIS D. VOLPP, B.S. Iowa State 1952; M.A. Iowa 1956. The determination and use of sales potentials. *Iowa.*

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JOSEPH AIROV, Ph.D. Harvard 1957. Location factors in the synthetic fiber industry with special reference to Puerto Rico.

FRANCIS J. ALBERTS, Ph.D. New York 1957. Profits and profitability in the chemical industry.

JOHN J. BREEN, Ph.D. Clark 1957. An analysis of the regulation of milk by the State of Rhode Island.

GILBERT T. BROWN, Ph.D. Yale 1957. The entry of new firms into manufacturing in Connecticut since World War II.

CARL L. BUTLER, Ph.D. Maryland 1957. The problem of highway user charges.

JOHN E. CLAYTON, Ph.D. Pennsylvania 1957. Public utility regulation in Georgia.

JAY D. COOK, Ph.D. Ohio State 1956. Cost concepts and problems under state unfair sales and practice acts.

JOHN CRAVEN, Ph.D. Syracuse 1957. The cotton textile machinery industry.

RICHARD K. DARR, Ph.D. Nebraska 1956. A history of the Nashua and Lowell Railroad Corporation 1835-1880.

RICHARD N. FARMER, Ph.D. California 1957. Maritime operating-differential subsidies.

BENJAMIN GOLDBERG, Ph.D. American 1957. A case study in price control during the Korean emergency—the petroleum industry in the U.S.A.

JOSEPH R. HARTLEY, D.B.A. Indiana 1957. The impact of the St. Lawrence Seaway on the mid-west grain markets.

ELDON S. HENDRIKSEN, Ph.D. California 1957. Capital expenditures in the steel industry, 1900-1953: an investigation of economic factors influencing their timing and magnitude.

YEN HUI HO, Ph.D. Southern California 1957. The impact of inflation upon the steel industry of the U. S., 1946-1954.

WILLIAM IULO, Ph.D. Wisconsin 1957. Inter-company variations in electric utility unit costs.

DAVID D. KENDRICK, Ph.D. California 1956. Organizational aspects of the international transfer of technical knowledge: a case study of the drug industry.

EDWARD J. NEUNER, JR., Ph.D. Columbia 1957. Monopoly and competition in natural gas production.

HUGH S. NORTON, Ph.D., George Washington 1956. An economic survey of the Diesel locomotive in the railroad industry in the United States.

RALPH H. OAKES, Ph.D. Chicago 1957. Prices paid for some fair traded items in different types of Chicago stores 1953-1955.

EARLE W. ORR, Ph.D. Iowa 1957. A synthesis of theories of location, transportation rates, and spatial price equilibrium, with applications to the development of the meat-packing industry in the southeastern states.

STEPHEN PARANKA, D.B.A. Indiana 1957. An economic analysis of mass transit operations in the United States.

THOMAS A. PETIT, Ph.D. California 1956. The economics of the softwood plywood industry.

LEMONT K. RICHARDSON, Ph.D. Wisconsin 1956. The R.E.A. program in Wisconsin.

WARREN J. SAMUELS, Ph.D. Wisconsin 1957. The concepts of major business and labor organizations on the role of government in the economy.

SAUL S. SANDS, Ph.D. Pennsylvania 1957. Trends in scale of production and in concentration, United States manufacturing industry, 1904-1947.

HOWARD G. SCHULTZ, Ph.D. Pittsburgh 1957. Economic aspects of price control in the meat industry during World War II.

TSUNG-YUEN SHEN, Ph.D. Yale 1957. A quantitative study of production in the American cotton textile industry, 1840-1940.

STEPHEN H. SOSNICK, Ph.D. California 1956. Contemporary norms for market structure and behavior: a critical appraisal.

JAMES M. WALLER, Ph.D. North Carolina 1957. The economic philosophy and theory of the Supreme Court in recent Sherman Act cases on single-firm expansion.

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RICHARD S. ABLIN, B.A. Chicago 1950; M.A. 1954. Electric power allocation in the Pacific Northwest. *Chicago.*

BEN A. ALVORD, B.S. Alabama Polytechnic Inst. 1951; M.S. Illinois 1954. A study of the financing of the U. S. domestic trunk airlines 1946-1954. *Illinois.*

STANLEY E. BOYLE, B.B.A. Washington State 1954. Some economic aspects of the petro chemical industry. *Wisconsin.*

ROBERT C. BROOKS, JR., B.A. Chicago 1946; M.B.A. 1951. The meaning and determination of "Injury to competition" as applied in the enforcement of sections 2a, 2b, and 2f of the Robinson-Patman Act. *Chicago.*

FRANCIS E. BROWN, JR., B.S. Bethany 1949; M.B.A. Pennsylvania 1951. The definition and measurement of the travel and vacation industry. *Pennsylvania.*

NORMAN BYERS, B.S. Northwestern 1950; M.A. 1954. Quality competition in transportation: trailer-on-flat car. *Northwestern.*

BENJAMIN CHRISTOPHER, B.A. Duke 1948; M.A. 1951. Geographic wage differentials and industry location. *Princeton.*

WILLIAM I. DAVISSON, B.A. Pugèt Sound 1953; M.A. 1954. The impact of public power development on the Pacific Northwest. *Cornell.*

JOHN LAWRENCE ENOS, B.S. Mass. Inst. Technology 1949; M.A. Western Reserve 1956. The history of cracking in the petroleum refining industry 1908-1957. *Mass. Inst. Technology.*

RICHARD NEIL FARMER, A.A., B.A. California 1950; M.A. 1952. An analysis of the effects of operating differential subsidies, Merchant Marine Act, 1936, as amended. *California.*

HOWARD C. GILES, B.S. Kentucky 1949; M.S. 1957. A case study of the Indiana Restaurant Association. *Purdue.*

LEROY J. GROSSMAN, B.S., B.A. Washington (St. Louis). The growth and significance of the apparel industry in Tennessee, 1940-1956. *Vanderbilt.*

FRED S. HOFFMAN, B.A. California (Los Angeles) 1947; M.A. 1948. An economic analysis of urban traffic congestion, with special reference to Los Angeles. *California.*

WILLIAM E. HURLEY, B.S. Ohio State 1949; M.B.A. 1950. Titan of Pennsylvania, a business history of the Titan Metal Manufacturing Company, Bellefonte, Pennsylvania. *Indiana.*

WALTER H. JOHNSON, B.A. Connecticut 1950; M.A. 1951. The effects of vertical integration patterns on the electric utility industry. *Western Reserve.*

ROBIN C. LINSTROMBERG, B.A. Pacific 1954; M.A. 1955. The public agency benefit-to-cost-ratio and concepts of social cost. *Oregon.*

RICHARD S. MARTIN, B.A. Harvard 1950; M.S. Cornell 1955. The behavior of the steel industry: a case study based on social accounting analysis. *Cornell.*

WILLIAM D. MAXWELL. B.A. North Carolina 1949; M.A. 1954. The rate structure in interstate trucking. *Johns Hopkins.*

SIDNEY L. MILLER, JR. B.A. Stanford 1941; M.A. 1949. Economics of small shipments. *Pennsylvania.*

WALTER G. MITCHELL, B.S. U. S. Military Academy 1943; M.B.A. Columbia 1953. The management of "fair trade." *Columbia.*

CHARLES T. MOORE, B.S. Indiana 1952; M.B.A. 1953. The economic effects of water transportation on the Ohio River. *Indiana.*

ROBERT S. M. NIELSEN, B.Ec. Sydney 1949; B.Ec. Melbourne 1947. The economics of tanker operations with special reference to the role of the independent tanker owners. *California.*

GORDON NOVOTNIE, B.A. Pennsylvania State 1940; M.L. Pittsburgh 1952. Analysis of employment stabilization programs and techniques with special emphasis on the steel industry. *Pittsburgh.*

JOHN OTIS, B.CHE. Syracuse 1943; M.B.A. 1950. The abrasives industry. *Syracuse.*

PETER PASHIGIAN, B.A. Wayne 1954. Market behavior in the automobile industry 1946-1956. *Mass. Inst. Technology.*

JAMES MILTON PATTERSON, B.S. U. S. Merchant Marine Academy 1945; M.B.A. Cornell 1954. Merchant Marine promotion: a study in business-government relations. *Cornell.*

CHIU HOCK QUAN, M.A. Colorado 1955. The economics of natural and synthetic rubber. *Colorado.*

JOHN W. RIEGEL, B.B.A. Michigan 1947. Research and competition in the railway car industry. *Harvard.*

JOSEPH ROMM, B.S. City (New York) 1940; M.A. American 1950. The titanium industry and the federal government. *American.*

GEORGE W. RUCKER, B.A. Oklahoma 1951; M.A. 1953. Some economic assumptions underlying long-range forecast of electric power needs. *Oklahoma.*

EVERETT W. SCHADT, B.B.A. Boston 1932; M.A. Texas 1936. The migration in American industry 1939-1954. *North Carolina.*

ERIC SCHENKER, B.B.A. City (New York) 1952; M.S. Tennessee 1955. A port authority for the State of Florida. *Florida.*

STANLEY A. SELF, B.A. Texas A. & M. 1947; M.A. North Texas State 1949. Municipal electric systems in Oklahoma. *Oklahoma.*

FRED S. SILANDER, B.S. New Hampshire 1949; M.S. 1952. Analysis of business mergers, with special emphasis on the textile industry. *Cornell.*

GERALD F. SORRENSEN, B.Ph. Wisconsin 1939; M.A. California (Los Angeles) 1957. Economic criteria applied to highway construction. *California (Los Angeles).*

RONALD H. WOLF, B.B.A. Washington 1939; M.A. 1949; B.D. Union Theological 1952. A study in the development, internal organization, external relationships, and significance to the economy, of General Motors Corporation. *Vanderbilt.*

JAMES S. WORLEY, B.A. Vanderbilt 1949; M.A. 1950. Research and competition. *Princeton.*

LEONARD T. WRIGHT, B.S. Syracuse 1948; M.B.A. 1949. A search into the financial effects of recent corporate mergers and consolidations. *American.*

Zenon S. Zannetos, B.A. Kansas 1953; M.S. Mass. Inst. Technology 1954. Oil tanker markets and oil tanker rates. *Mass. Inst. Technology.*

Land Economics; Agricultural Economics; Economic Geography; Housing

Degrees Conferred

RAYMOND A. BAILEY, Ph.D. Ohio State 1957. A farm management analysis of the swine enterprise in a commercial swine-producing area in Ohio.

CARLISLE W. BASKIN, Ph.D. Virgina 1957. A critique and translation of Walter Christaller's *Die Zentralen Orte in Süddenutchland.*

CHARLES H. BERRY, Ph.D. Chicago 1956. Farm employment 1940-1950, a cross-sectional analysis.

Gordon E. Bivens, Ph.D. Iowa (Ames) 1957. Firm-household interdependence and other factors in relation to use of credit by farm families in Greene County, Iowa.

Michael J. Brennan, Ph.D. Chicago 1956. The role of government in butter storage operations.

Cyril A. Bright, Ph.D. Wisconsin 1956. Characteristics of the retail feed business in Wisconsin, 1954.

David W. Brown, Ph.D. Iowa (Ames) 1956. Adjustment of value productivity estimates to changes in price and technical relationships.

Robert C. Brown, Ph.D. Harvard 1957. An analysis of selected methods for improving farm capital structures in Butte County, California.

Elijah D. Chastian, Jr. Ph.D. Purdue 1956. An empirical study of the decision-making process in farm management.

Howard R. Dorsett, Ph.D. Iowa (Ames) 1956. Intra-family transfers of farm property in Jefferson County, Iowa.

Riley S. Dougan, Ph.D. Ohio State 1956. An analysis of the use of economic information in farm production decisions by Ohio farmers.

William D. Durland, Ph.D. Texas 1957. An inquiry into forest adequacy as it concerns the United States.

Homer C. Evans, Ph.D. Minnesota 1956. The nature of competition among apple processors in the Appalachian area.

K. A. G. Hamouda, Ph.D. Minnesota 1956. Economic aspects of the application of co-operative farming in Egypt.

Basim Abudulmasih Hannush, Ph.D. Harvard 1957. The economic effects of part-time farming—Piedmont area of North Carolina.

Lawrence W. Haynes, Ph.D. Wisconsin 1957. An analysis of the ice cream industry as an outlet for dairy products.

Mohamed Kamel Hindy, Ph.D. Wisconsin 1957. Application of some sampling techniques to improve the collection of agricultural data in Egypt.

Irving J. Hoch, Ph.D. Chicago 1957. Estimation of agricultural resource productivities combining time series and cross section data.

Sam Chung Hsieh, Ph.D. Minnesota 1957. Rice and sugar cane competition on paddy land in Central Taiwan.

John J. Hughes, Jr., Ph.D. Brown 1957. Demand relations in housing.

Leland L. Johnson, Ph.D. Yale 1957. Hedging, speculation and futures trading in the coffee market.

Orville E. Krause, Ph.D. Wisconsin 1957. Wisconsin feeder pig markets and prices.

Luigi M. Laurenti, Ph.D. California 1957. Effects of nonwhite purchase and occupancy on market prices of residences in San Francisco, Oakland, and Philadelphia.

Theodore W. Leed, Ph.D. Ohio State 1957. A study of the relationship of merchandising practices and other factors to the price and movement of greenhouse tomatoes in retail food stores.

Harold C. Love, Ph.D. Iowa (Ames) 1956. An application of linear programming to farm and home planning.

Howard D. Lowe, D.B.A. Indiana 1957. The problems of the central business district of Madison, Wisconsin.

Patrick J. Luby, Ph.D. Purdue 1956. Methodology applicable to short-run prediction of marketing and prices of hogs.

Wilbur R. Maki, Ph.D. Iowa (Ames) 1956. Financial organization in farmer cooperatives.

Benjamin A. Michalik, Ph.D. Fordham 1957. The decline of anthracite: an analysis 1913-1955.

Walter G. Miller, Ph.D. Iowa (Ames). 1956. Relative efficiencies of farm tenure classes in resource use.

Yair Mundlak, Ph.D. California 1957. Analysis of agricultural production forecasts in the statistical decision theory framework.

Delbert C. Myrick, Ph.D. Harvard 1957. An experiment in land use planning illustrated by Hand County, South Dakota.

Marc Nerlov, Ph.D. Johns Hopkins 1956. Estimates of the elasticity of supply of selected agricultural commodities.

Robert C. Otte, Ph.D. Wisconsin 1956. The small watershed program in Wisconsin.

Umar Khan Niazi, Ph.D. Ohio State 1957. Capital regeneration of agriculture in Pakistan.

Joseph C. Purcell, Ph.D. Iowa (Ames) 1956. Effect of income, fluid milk prices, and race on consumption of fluid milk and fluid milk substitutes in the urban South.

Horace L. Puterbaugh, Ph.D. Purdue 1957. Farm enterprise selection by linear programming.

James P. Rice, Ph.D. Pittsburgh 1957. Taxation and assessment of coal, gas, and oil with special reference to Western Pennsylvania, Eastern Ohio, and Northern West Virginia.

Hubert E. Risser, Ph.D. Kansas 1956. Some basic changes in the bituminous coal industry, 1903-1953, and their economic implications.

John A. Ryan, Ph.D. Texas 1957. The development of grain sorghums as an economic resource.

John A. Schnittker, Ph.D. Iowa (Ames) 1956. Application of input-output analysis to a regional model stressing agriculture.

J. T. Scott, Ph.D. Iowa (Ames) 1957. Application of linear programming for profit maximization in the feed firm.

James A. Seagraves, Ph.D. Iowa (Ames) 1956. Choice of crop rotations under crop-share leases: a linear programming application.

Raymond E. Seltzer, Ph.D. California 1957. The competitive position of the Los Angeles cattle market.

Warren R. Seyfried, D.B.A. Indiana 1956. A study of the economic future of Bloomington, Indiana as an aid to the management process.

Cecil N. Smith, Ph.D. California 1957. An economic analysis of the eastern apple industry.

Milton Snodgrass, Ph.D. Purdue 1956. Linear programming approach to optimum resource use in dairying.

Robert M. Sparks, Ph.D. Pennsylvania 1957. Post-war movement of manufacturing in Philadelphia and adjacent Pennsylvania counties.

Henry B. Steele, Ph.D. Mass. Inst. Technology 1957. Economic potentialities of synthetic liquid fuels from oil shale.

Thomas T. Stout, Ph.D. 1956 Ohio State. Initial inquiries into the possibility of formula pricing live-graded hogs under changing economic conditions.

Nathaniel B. Tablante, Ph. D. Purdue 1956. An appraisal of agriculture problems and policies in the Philippines.

Lester G. Telser, Ph.D. Chicago 1956. The supply of stocks: cotton and wheat.

Nicholas Thuroczy, Ph.D. California 1957. Economic analyses of multiple pricing plans for United States barley.

Robert W. Travis, D.B.A. Indiana 1956. Paducah, Kentucky: the study of a critical defense housing area.

Clarence E. Trotter, Ph.D. Minnesota 1956. Consumer preference for lean and fat type pork cuts.

William A. Wayt, Ph.D. Ohio State 1956. Part-time farming in Ohio, with special reference to its use as a route to fulltime farming.

NOLAN E. WILLIAMS, Ph.D. Texas 1957. An inquiry into some of the cost determination problems of the forest products industries of Arkansas.

Theses in Preparation

MATE AMAT, B.S. Belgrade 1938; M.B.A. Columbia 1954. Economics of the timber industry in Yugoslavia. *Columbia.*

FRED B. ANDERSON, B.S.A. Oklahoma A. & M. 1951; M.S.A. Missouri 1952. An economic evaluation of custom harvesting of potatoes by packing plants. *Florida.*

ALI AHMED ATTIGA, B.S. Wisconsin 1953; M.S. 1956. Agricultural development and industrial growth. *Wisconsin.*

HENRIK J. AUNE, B.S. Minnesota 1947; M.S. 1953. An economic analysis of labor inputs in dairying as affected by size of herd and types of equipment. *Minnesota.*

H. WALTER BAUMGARTNER, Dipl. Agr. Giessen (Germany) 1948; Dr. Agr. 1949; M.A. McGill 1956. An investigation of buyers' and sellers' motivations in the farm real estate market. *Minnesota.*

CALVIN R. BERRY, B.S.A. Arkansas 1952; M.S. 1953. An economic analysis of fertilizer marketing and pricing with particular reference to Indiana. *Purdue.*

JOHN W. BIRCH, B. Com. McGill 1954. The changing location of the North American wood pulp industry 1900-1955. *Johns Hopkins.*

GORDON BIVENS, B.S. Iowa State 1950; M.S. 1953. Farm-household interdependence and other factors related to the use of credit by farm families in Green County, Iowa. *Iowa (Ames).*

ROBERT K. BROWN, B.S. Johns Hopkins 1952; M.A. Pittsburgh 1954. The legislative background of public housing and its financial impact, expecially on the Pittsburgh area. *Pittsburgh.*

WILLIAM M. BROWN, B.S. Municipal (Omaha) 1951; M.B.A. Washington 1952. The Pittsburgh wholesale produce market. *Pittsburgh.*

WILFRED CANDLER, B.S. Massey Agricultural (New Zealand) 1954; M.S. 1956. Programming with variable yields. *Iowa (Ames).*

HAROLD O. CARTER, B.S. Michigan State 1954; M.S. 1955. An inter-regional input-output analysis of agriculture and other sectors of the national economy. *Iowa (Ames).*

GRANT L. CORNELIUS, B.S. Nebraska 1950; M.A. 1956. Institutional aspects of rural resource development. *Wisconsin.*

RICHARD D. DARLEY, B.S. Cornell 1951; M.S. Missouri 1952. Shortrun fluctuations in broiler prices. *Purdue.*

JOHN A. DAWSON, B.Sc. McGill 1947; M.S. Illinois 1949. The demand for irrigation water in a selected area in the Missouri Basin. *Chicago.*

GERALD W. DEAN, B.S. Iowa (Ames) 1952; M.S. 1955. Supply functions for pork production. *Iowa (Ames).*

JOHN DOLL, B.S. Montana State 1953; M.S. 1955. A logic of fitting production surfaces. *Iowa (Ames).*

JEANNE E. DOST, B.A. Washington State 1951; M.A. Radcliffe 1953. An interregional analysis of the United States wheat industry. *Harvard.*

AKHILESH DUBEY, B.Sc. Bikar (India) 1952; M.S. Oklahoma A. & M. 1955. A market price analysis of soft red winter wheat in Ohio. *Ohio State.*

ALVIN C. EGBERT, B.S. Kentucky 1954; M.S. 1955. Programming regional adjustments in resource use for grain production with changing demand. *Iowa (Ames).*

THEO ELLIS, B.S.A. Florida 1948; M.S.A. 1951. An application of the theory of the firm to multiple enterprise farms in North Florida. *Florida.*

GLEN D. FULCHER, B.S. Idaho 1951; M.S. Wisconsin 1954. A review and analysis of experience in local-federal cooperation in selected resource management projects. *Wisconsin.*

Cecil E. Fuller, B.S. Ohio State 1954, M.S. 1955. An economic analysis of location of grain storage facilities in Ohio. *Ohio State.*

Farhad Ghahraman, B.L. Teheran, 1948; B.S. California 1953. The use of water in the agriculture of Iran. *Minnesota.*

Vaughan S. Hastings, B.S. U.S. Naval Academy 1945; M.A. Chicago 1957. Water allocation in the North Platte and Platte Rivers. *Chicago.*

Fred J. Hoffer, B.S.A. Florida 1953; M.S.A. 1955. An economic analysis of the Florida honey industry. *Florida.*

Harrison Hsia, B.S. Nanking 1942. The relationship between price variation and feeding practices for hogs. *Wisconsin.*

Rufus B. Hughes, Jr., B.S. Oklahoma A. & M. 1948; M.S. 1950. Population adjustments and economic status of Southern farmers. *Chicago.*

Linley E. Juers, B.S. Minnesota 1953; M.S. 1954. An economic analysis of the operating costs of butter-powder plants with particular reference to the problem of joint costs. *Minnesota.*

Lawrence J. Kaplan, B.A. Brooklyn 1937; M.A. Columbia 1938. Factors affecting productivity in the homebuilding industry. *Columbia.*

Myron P. Kelsey, B.S. Cornell 1953; M.S. 1956. Economic effects of field renting on resource use. *Purdue.*

Elmer R. Kiehl, B.S. Missouri 1942; M.A. 1950. Consumer evaluations of beef—a heterogeneous product. *Harvard.*

Arvid C. Knudtson, B.S. Minnesota 1950; M.S. 1953. Costs of processing milk in specialized butter plants. *Minnesota.*

William Kohlmeyer, B.S. Iowa (Ames) 1928; M.S. Purdue 1938. An economic evaluation of industry promotion of agricultural products. *Purdue.*

Luther B. Kristjanson, B.S. North Dakota Agricultural 1951; M.A. Nebraska 1953. An analysis of the effects of price support policy on the dairy industry. *Wisconsin.*

Hugh E. Law, B.B.A. Baylor 1952; M.S. 1953. Foreign trade restrictions and American agriculture. *Louisiana State.*

Donald Lloyd-Jones, B.A. Swarthmore 1952; M.B.A. Columbia 1954. The economic effects of the Cauca river development program. *Columbia.*

Laurel D. Loftsgard, B.S. North Dakota State 1954. Programming farms for extension recommendations. *Iowa (Ames).*

Gene McMurtry, B.S. Colorado A. & M. 1954; M.S. Purdue 1956. An analysis of the impact of various soil bank proposals upon Midwestern agriculture. *Purdue.*

James P. Miller, B.S. Pittsburgh 1943; M.S. 1951. Economics of light frame construction. *Pittsburgh.*

John R. Moore, B.S. Ohio State 1951; M.S. Cornell 1955. The changing structure of the dairy industry since World War II. *Wisconsin.*

Saad Nagi, B.S. Cairo 1947; M.S. Missouri 1953. Migration and factors associated with integration in rural fringe areas. *Ohio State.*

James Nakamura, B.S. Columbia 1952. Government policy regarding agriculture in Japan. *Columbia.*

Herng Kern Oh, B.S. Abilene Christian 1951; M.S. Colorado A. & M. 1953. Price-quantity relationships of demand for soft red winter wheat. *Ohio State.*

Philip G. Olson, B.A. Arizona 1954; M.A. 1956. Socio-economic factors affecting labor mobility in rural areas. *Purdue.*

Arnold Paulsen, B.S. Iowa (Ames) 1951. Ascertaining the effects of production control programs. *Iowa (Ames).*

Vernon W. Pherson, B.S. Purdue 1954; M.S. Connecticut 1956. Short-run prediction of hog prices. *Purdue.*

John A. Pincus, B.A. Colby 1948; M.A. Columbia 1950. Primary industry and the economic development of Canada. *Harvard.*

EDWARD F. RENSHAW, B.S. Washington State 1954; M.A. Chicago 1955. An economic appraisal of public investment in irrigation. *Chicago.*

WILLIAM T. RICHIE, B.S. Georgia State 1941; M.S. Ohio State. A history of agricultural cooperatives. *Ohio State.*

HOWARD F. ROBINSON, B.S. North Carolina A. & T. 1948; M.S. Illinois 1949. An analysis of the use of the potato futures market from the standpoint of the Ohio potato grower. *Ohio State.*

NORMAN L. ROLLAG, B.S. South Dakota State 1954; M.S. 1956. An economic analysis of factors affecting milk prices. *Purdue.*

ADNAN SHUMAN, Lic. in Law, Syria 1949. The cooperative movement in selected countries in Europe and in the Arab States. *Ohio State.*

WESLEY SMITH, B.S.A. Manitoba 1951; M.S. Minnesota 1953. Programming farm plans for successive years in Western Iowa. *Iowa (Ames).*

DONALD D. STEWARD, B.S. Ohio State 1949. An appraisal and analysis of low income agricultural area of Southeastern Ohio. *Ohio State.*

FREDERICK C. TEMPLE. Ph.B. Wisconsin 1947; M.S. 1948. An analysis of business operation among wholesale feed manufacturers, Wisconsin, 1956. *Wisconsin.*

JOHN E. THOMPSON, B.S. South Dakota 1949; M.S. The application of some basic principles of taxation to selected types of farming. *Wisconsin.*

DONALD L. VOGELSANG, B.S. Iowa (Ames) 1951; M.S. Purdue 1956. Aggregate effects of various soil bank programs on American agricultural production. *Purdue.*

ARTHUR J. WALRATH, B.S. Connecticut State 1936; M.A. Wisconsin 1940. Impacts of the expanding urban-rural economy on agriculture in southeastern Wisconsin. *Wisconsin.*

RICHARD G. WALSH, B.S. Nebraska 1952; M.A. 1955. Public and private measures for making the best use of rural recreational lands. *Wisconsin.*

CLIFTON R. WHARTON, JR., B.A. Harvard 1947; M.A. School of Advanced Internat. Studies 1948; M.A. Chicago 1956. Capital and technology in the agricultural development of Minas Gerais, Brazil. *Chicago.*

CHARLES WOODRING, B.A. Pennsylvania State 1947; M.B.A. Pennsylvania 1949. A study of the elasticity of demand for housing. *Pittsburgh.*

MARTIN H. YEH, B.S. National Taiwan (China) 1951; M.S. Michigan State 1955. Demand functions for fertilizer. *Iowa (Ames).*

Labor

Degrees Conferred

KENNETH O. ALEXANDER, Ph.D. Mass. Inst. Technology 1957. A union facing diverse bargaining situations: the UAW in Detroit.

GORDON W. BERTRAM, Ph.D. California 1957. Industrial relations in the northern California construction industry.

JOHN L. BLACKMAN, JR., Ph.D. Harvard 1957. Presidential seizure in labor disputes.

TONY BROUWER, Ph.D. Michigan 1957. The limitation of the work week: an analysis of its rationale, enforcement, and economic effects.

FRANK E. CHILDS, Ph.D. Minnesota 1956. The definition and measurement of wage flexibility.

A. KEITH COLLINS, Ph.D. Cornell 1957. Developing leadership in a small plant: a critical account of an experimental management training program.

ARTHUR J. D. COOK, Ph.D. Kansas 1957. The union member as a foreman: a problem in union-management cooperation.

WILLIAM B. CUNNINGHAM, Ph.D. Brown 1957. Compulsory conciliation and collective bargaining: the New Brunswick experience.

SISTER MARY JORDAN DAHM, OSF., Ph.D. St. Louis 1957. Types of arbitration tribunals:

an investigation of their comparative roles in the settlement of disputes at the plant-local-union level.

Mary L. Dooley, Ph.D. Wisconsin 1957. The employers' and the unions' duty to bargain collectively under the Labor-Management Relations Act.

Leslie Fishman, Ph.D. California 1957. Theories of the American labor movement.

Thomas W. Gavett, Ph.D. Wisconsin 1957. The development of the labor movement in Milwaukee, Wisconsin.

Sidney Goldstein, Ph.D. American 1957. Labor turnover in the United States—an economic appraisial of aggregate labor mobility.

Peter Gregory, Ph.D. Harvard 1957. Plant wage determination and the local labor market.

Francis E. Highton, Ph.D. New York 1956. The issue of distributive shares—its place in the collective bargaining process.

George W. Hilton, Ph.D. Chicago 1956. The truck system in Great Britain.

Wayne E. Howard, Ph.D. Pennsylvania 1957. The arbitration of the ability qualification to the exercise of contractual seniority rights.

Paul V. Johnson, Ph.D. Western Reserve 1956. Democracy and the decision-making process under collective bargaining.

Imtiaz A. Khan, Ph.D. Kansas 1956. The United States federal mediation system and its significance for Pakistan.

Philip Kotler, Ph.D. Mass. Inst. Technology 1956. Problems of industrial wage policy in India.

Lester S. Levy, Ph.D. Cornell 1956. The pattern of union-management conflict in the automobile industry, 1937-1950.

Duncan W. Murphy, Ph.D. Wisconsin 1957. An inquiry into the nature and significance of the strike.

Ronald R. Olson, Ph.D. Wisconsin 1957. An appraisal of workmen's compensation.

Rudolph Pinola, Ph.D. Wisconsin 1957. Labor and politics on the Iron Range of Northern Minnesota.

Gus T. Ridgel, Ph.D. Wisconsin 1957. A study of the labor movement and industrial relations in the cotton textile industry in Bombay, India.

Gaston V. Rimlinger, Ph.D. California 1956. Labor protest in British, American, and German coal mining prior to 1914.

Richards N. Rosett, Ph.D. Yale 1957. Working wives: an econometric analysis.

John C. Scheib, Jr., Ph.D. Minnesota 1956. An analysis of provisions for compensation for restricted time in the development of time standards for wage incentives.

James G. Witte, Jr., Ph.D. Indiana 1956. Automatic production and unemployment: a theoretical analysis.

Theses in Preparation

Leon Applebaum, B.A. Brooklyn 1951; M.A. Wisconsin 1953. New trends in union structure and programs. *Wisconsin.*

J. A. Gilles Beausoleil, B.A. Laval 1949; M.A. 1953. Conciliation boards in Quebec. *Mass. Inst. Technology.*

Edwin W. Bishop, B.A. Antioch 1950; M.A. Johns Hopkins 1951. The Guatemalan labor movement. *Wisconsin.*

Charles H. Blake, Jr., B.S. Linfield 1948; M.S. Wisconsin 1953. Development of the Philippine labor movement. *Wisconsin.*

Allen J. Braff, B.A. Rochester 1951; M.B.A. Columbia 1953. An analysis of group behavior in the steel industry with emphasis on its inflationary impact. *Wisconsin.*

Donald T. Butler, B.A. Western Michigan 1950; M.S. Wisconsin 1951. Union organizing in Iowa, 1945 to 1956. *Wisconsin.*

JOSEPH K. DAVIES, B.S. Marquette 1945; M.S. Brigham Young 1950. A study of Mormon philosophy with regard to labor relations. *Southern California.*

REV. JOSEPH R. DEMPSEY, B. Litt. Xavier, Cincinnati 1941; M.A. Wisconsin 1956. Compulsory unionism. *Wisconsin.*

WILLIAM S. DEVINO, B.A. Vermont 1951; M.A. Connecticut 1953. Unemployment and compensation exhaustees. *Michigan State.*

RICHARD M. DUKE, B.A. Wooster 1953; M.A. Yale 1954. The occupational wage structure in the railroad industry in the United States, 1922-1954. *Yale.*

WILLIAM W. FLANAGAN, B.A. Holy Cross 1941; M.A. Boston College 1946; M.A. Fordham 1949. The effect of union security laws on labor unions, management, industrial relations and economic development in the state of Iowa, 1940-1954. *Columbia.*

MARION B. GROSS, B.A. Syracuse 1951; M.A. Michigan 1956. Prediction of participation of married women in labor force. *Michigan.*

SHELDON HABER, B.A. City (New York) 1954. An analysis of industrial employment by age and sex groups. *Johns Hopkins.*

FAWZI HABIB, B.A. Fouad First (Egypt) 1944; M.S. North Carolina State 1955. Labor movement and industrial growth in Egypt and the Arab countries. *Duke.*

ETHEL B. JONES, B.A. Vassar 1952; M.A. Chicago 1954. Hours of work and the demand for leisure, 1900 to 1957. *Chicago.*

ARTHUR M. KRUGER, B.A. Toronto 1955. Union-management relations in the Canadian basic steel industry. *Mass. Inst. Technology.*

WILLIAM J. LEE, S.S., B.A. St. Mary's 1943; M.A. Catholic 1947. Right-to-work laws—economic and ethical aspects. *Catholic.*

JOHN LEONARD, B.S. Arizona 1952; M.A. 1953. An analysis of urban-rural, regional, and industrial patterns of union organizing since Taft-Hartley. *Cornell.*

PHILIP MARCUS, A.A. Florida 1950; B.A. Bucknell 1952; M.A. Rutgers 1955. Migratory labor in New Jersey. *Rutgers.*

FRED C. MUNSON, B.S. Cornell 1952. Collective bargaining in the lithographic industry. *Mass. Inst. Technology.*

GORMAN C. SMITH, B.S. U.S. Military Academy 1951; Economics of Army compensation. *Columbia.*

BEVERLY STARIKA, B.A. Colorado 1950. Legislation as an expression of public policy toward agricultural labor. *California.*

HARRY F. STARK, B.A. Pittsburgh 1944. An analysis of trade union administration. *Rutgers.*

MAYNARD N. TOUSSAINT, B.A. Hamline 1953; M.A. Illinois 1954. The impact of the administration of the industrial relations function on line management. *Mass. Inst. Technology.*

WARREN WATERHOUSE, B. Ed Wisconsin State 1933; M.B.A. Denver 1948. The occupational propensity of skilled labor and some factors which influence its supply. *Northwestern.*

HERBERT D. WERNER, B.S. Northwestern 1953. Labor-management relations in the petroleum industry. *California.*

DONALD E. YETT, B.A. California 1952. A study of collective bargaining, 1929-1939. *California.*

Population; Welfare Programs; Standards of Living

Degrees Conferred

GORDON S. BRUNHILD, Ph.D. Southern California 1957. An economic analysis of the federal Old Age and Survivor's Insurance Act.

JOHN Q. T. KING, Ph.D. Texas 1957. A statistical analysis of the economic aspects of nineteen Protestant Church-related colleges in Texas.

Sylvia Lane, Ph.D. Southern California 1957. A study of selected agencies that evaluate consumer goods qualitatively in the United States.

George F. Mair, Ph.D. Princeton 1957. The projection of national populations: a report on the state of an art.

Mary B. Minden, Ph.D. Purdue 1957. The consumption decision and implication for consumer education programs.

Bernard Okun, Ph.D. Johns Hopkins 1957. Essays on the trends in the birth rates.

D. Narasinga Rao, Ph.D. Wisconsin 1957. Social security in India.

Theses in Preparation

Shri Narayan Agarwala, B.A. Allahabad (India) 1944; M.A. 1946. Age at marriage in India. *Princeton.*

Reginald T. Appleyard, B.A. Western Australia 1953; M.A. 1955. An examination of some movements of population and capital from the United Kingdom to Australia during the 1920's and early 1930's with particular reference to the Overseas Settlement Scheme. *Duke.*

Gordon S. Brunhild, B.S. Southern California 1949; M.B.A. 1951. Economic analysis of the federal Old Age and Survivors Insurance Act. *Southern California.*

Robert S. David, B.S. California 1938; M.A. George Washington 1949. Social insurance in an expanding economy. *George Washington.*

Gilbert Marhoefer, B.S. Pittsburgh 1949; M.L. 1951. Historical development and evaluation of Refugee Act of 1953. *Pittsburgh.*

Roger Walker, B.B.A. Miami 1953; M.A. 1954. An evaluation of the pre-retirement planning system of the Tennessee Valley Authority. *Cornell.*

VACANCIES AND APPLICATIONS

The Association is glad to render service to applicants who wish to make known their availability for positions in the field of economics and to administrative officers of colleges and universities and to others who are seeking to fill vacancies.

The officers of the Association take no responsibility for making a selection among the applicants or following up the results. The Secretary's Office will merely afford a central point for clearing inquiries; and the *Review* will publish in this section brief description of vacancies announced and of applications submitted (with necessary editorial changes). Since the Association has no other way of knowing whether or not this section is performing a real service, the Secretary would appreciate receiving notification of appointments made as a result of these announcements. It is optional with those submitting such announcements to publish name and address or to use a key number. Deadlines for the four issues of the *Review* are February 1, May 1, August 1, and November 1.

Communications should be addressed to: The Secretary, American Economic Association, Northwestern University, Evanston, Illinois.

Vacancies

Economics, statistics, public finance: Applications are being received to fill the position of Highway Research Economist to head a small economics studies section of the research division of the Virginia Department of Highways. The work involves planning, supervising, and conducting research pertaining to highway tax revenues, fund distribution, and the economic significance of highway location and design. Qualifications include a master's degree in economics (course work may not be substituted for thesis) and four years of research experience, at least two years of which must have been in economic research demonstrating performance ability. A Ph.D. degree may be substituted for the two years of higher level research experience. Salary range $6,432-$8,040. Opportunity to undertake or continue part-time Ph.D. course study and to have research for dissertation assigned as the principal duty of the position. Send biographical résumé to Tilton E. Shelburne, Director of Research, Virginia Council of Highway Investigation and Research, Box 3817, University Station, Charlottesville, Virginia.

Economists Available for Positions

Economics, economic history, financial history, public finance, banking, investments: Man, Ph.D., New York University, 1953. Currently assistant professor at large Eastern university; has published articles, reviews; is coauthor of book and associate editor of scholarly journal. Would like to relocate and would be willing to do some administrative work in addition to teaching. E665

Economics, finance, business administration: Man, 40; Ph.D., 1942. Experience in banking, research, government; contributor to leading journals; popular trade book published last year and another being published this year; among books in progress is theory textbook. Taught 19 years at graduate and undergraduate levels, mainly economic theory and finance; 9 years in present position at state university. Present rank full professor. Available for better position. E682

General economic theory, theory of prices, national economics, Soviet economics, comparative systems, economic history, business affairs, accounting, European politics: Man, 27; married; Ph.D., French university, 1956; several other European diplomas in economics and politics. Publications (in French); presently a member of editorial staff of a daily newspaper in western New York; speaks several European languages. Desires teaching position. Will take any suitable proposition into consideration. Available on 30 days notice. E687

Public finance, private investment, planning and development: Man, 24; Master of Economics, University of Texas; Doctor of Economics, Université de Fribourg; Doctor of Law and Master of Philosophy, Santo Domingo University. Four years of experience with a law firm; 3 years of experience teaching economics and history in night college. Speaks Spanish (native tongue), English, French, and fair knowledge of Italian, Portuguese, and German. Publications in economics, philosophy, and literature. Desires teaching or business position. References. Available in September, 1957. E694

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BERNARD F. HALEY, Managing Editor
DORIS MERRIAM, Assistant

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ARTICLES

COMMUNICATIONS

BOOK REVIEWS

Manuscripts and editorial correspondence relating to the regular quarterly issues of this REVIEW should be addressed to Bernard F. Haley, Managing Editor of THE AMERICAN ECONOMIC REVIEW, Stanford University, Stanford, California. *Style Instructions* for guidance in preparing manuscripts in acceptable form will be provided upon request to the editor.

OTHER DEPARTMENTS

The American Economic Review

VOLUME XLVII DECEMBER 1957 NUMBER SIX

MONETARY SYSTEMS AND ACCELERATOR MODELS

By HYMAN P. MINSKY*

A significant part of recent literature on both growth and business-cycle theory has been based upon some form of an interaction between a consumption (saving) relation and an induced investment relation. The authors who have constructed these accelerator-multiplier models have paid little, if any, attention to the monetary prerequisites and effects of the assumed processes.[1] Obviously the accelerator-multiplier process takes place in the context of some monetary system. In this paper the manner in which the time series generated depends upon the interaction of an accelerator-multiplier process and the monetary system will be investigated: the main emphasis will be on the upper turning point and the possibility of generating steady growth. In this paper the lower turning point is unexplained aside from noticing how the various monetary systems can act as a brake on disinvestment and also, by changing liquidity, set the stage for a recovery.

The procedure will be to examine the result of combining a linear accelerator-multiplier model with a number of alternative monetary systems. The terms (interest rate) and the manner (type of liability) of financing investment are affected by the behavior of the monetary system. In turn, both money-market conditions and the balance-sheet structure of firms affect the response of firms to a change in income. This can be interpreted as making the accelerator coefficient an endogenous variable related to the monetary system. Hence the material

* The author is associate professor of economics, Brown University. A large portion of the work on this paper was done while he was a visiting associate professor at the University of California, Berkeley. He wishes to acknowledge his debt to Julius Margolis, Roger Miller and Merton P. Stoltz for their helpful comments and suggestions.

[1] J. R. Hicks, *A Contribution to the Theory of the Trade Cycle* (Oxford, 1950) and S. C. Tsiang, "Accelerator, Theory of the Firm, and the Business Cycle," *Quart. Jour. Econ.*, Aug. 1951, LXV, 325-41 briefly consider monetary factors.

in this paper could be formalized as a series of nonlinear accelerator-multiplier models.[2]

This paper is divided into four sections. The first is a brief review of the attributes of both linear and nonlinear accelerator-multiplier models, which is followed in the second section by an analysis of the behavior of the accelerator model with the quantity of money constant. The third section is an investigation of how the system would behave with the quantity of money varying in a number of different ways. In the last section some implications of the analysis for monetary and fiscal policies are briefly explored.

I. *Formal Attributes of Accelerator-Multiplier Models*

The essential linear accelerator-multiplier model can be written:[3]

$$Y_t = C_t + I_t \tag{1}$$

$$C_t = \alpha Y_{t-1} \tag{2}$$

$$I_t = \beta(Y_{t-1} - Y_{t-2}) \tag{3}$$

where Y = income, C = consumption, I = investment, α = marginal (= average) propensity to consume, β = accelerator coefficient and t is the number of the "day." By substitution, equations (1)-(3) yield:

$$Y_t = (\alpha + \beta) Y_{t-1} - \beta Y_{t-2} \tag{4}$$

Equation (4) is a second-order difference equation; its solution in general is of the form:

$$Y_t = A_1\mu_1{}^t + A_2\mu_2{}^t \tag{5}$$

where A_1 and A_2 depend upon the initial conditions and μ_1 and μ_2 are determined by the values of α and β.

Aside from the effects of the initial conditions, the time series generated by a second-order difference equation can be any one of the following: (1) monotonic equilibrating; (2) cyclical equilibrating; (3) cyclical with constant amplitude; (4) cyclical explosive; (5) monotonic explosive.[4] By itself, no one of these five types of time

[2] Obviously the interest rate and consumer debt affect consumption expenditures also; therefore the consumption coefficient also depends upon the behavior of the monetary system. The "Pigou effect" can be interpreted as a particular relation between the consumption coefficient and the monetary system. Such effects are ignored in this paper.

[3] This stripped model exhibits the characteristics of a linear accelerator-multiplier model which are important for the problems discussed in this paper. The incomes should be interpreted as deviations from a "zero" level of income given by $Y_0 = \lambda/1-\alpha$ where λ could be identified with autonomous investment or "zero income" consumption.

W. J. Baumol, *Economic Dynamics, An Introduction* (New York, 1951), Ch. 10, 11, gives a very simple discussion of the solution to second-order difference equations.

[4] The type of time series generated is determined by the values of μ_1 and μ_2, which in turn depend upon the values of α and β. For a type-1 series, μ_1 and μ_2 are both less than 1, for a type-2, 3, or 4 series μ_1 and μ_2 are conjugated complex numbers, and for a type-5 series μ_1 and μ_2 are both greater than 1.

series is satisfactory for business-cycle analysis. Types 1 and 5 are not cyclical. If they are to be used, either floors or ceilings to income or pushes (systematic or random) from outside have to be posited. A time series of type 2 would in time result in the cycle dying away, so that some systematic or random push is required to maintain the cycle. A time series of type 4 would in time generate fluctuations greater than any preassigned value. Hence floors and ceilings have to be posited to constrain the fluctuations. A type-3 time series is a self-sustaining cycle, but its existence depends upon a particular value of β and, in addition, the time series it generates is "too" regular.

A way out of this difficulty is to have the α and β coefficients vary over the cycle, thus generating a time series which is a combination of the different types of time series. Hicks and Goodwin do this by assuming that the value of β is so great that, unless constrained, an explosive time series is generated, but that constraints, in the form of a maximum depreciation rate and full employment (or the capacity of the capital-goods-producing industries), exist. These constraints force realized investment to be different from induced investment, and, formally, they can be interpreted as changing the value of β. As the value of β is assumed to fall (rise) when income is very high (low) or increasing (decreasing) very rapidly, an acceptably irregular cyclical time series is generated. Obviously by linking explosive, cyclical and damped movements together, any type of time series which is desired can be generated.

A set of formal nonlinear models similar to those of Hicks and Goodwin can be generated by positing that the value of β, the accelerator coefficient, depends upon money-market conditions and the balance sheets of firms. These factors in turn depend upon the relation between the level and rate of change of income and the behavior of the monetary system. In this paper however the mathematical model of the accelerator process will be a simple linear form. It is hoped that what is lost in mathematical neatness may be offset by what is gained in the identifiability of the economics.

So far we have not taken up the effects of the initial conditions. The initial conditions are particularly important in determining the income generated by a type-5 (monotonic explosive) time series for small values of t. To generate a type-5 time series, μ_1 and μ_2 are both greater than 1 in the relation $Y_t = A_1\mu_1^t + A_2\mu_2^t$. To set off the recursive process two levels of income Y_0 and Y_1 (the initial conditions) are needed, which determine the values of A_1 and A_2. If Y_1 is greater than Y_0 and the ratio of Y_1 to Y_0 is less than μ_2, the smaller root, then A_1, the coefficient of μ_1, the larger root (also called the dominant root), will be negative. As the larger root will in time dominate, a negative

A_1 will in time result in a negative Y_t. Hence if the rate of increase of income given by the initial conditions is less than the smaller root, there will be a turning point in the time series even though the values of α and β are such as to generate a monotonic-explosive time series.[5]

This leads to an alternative way of interpreting the Goodwin-Hicks type of nonlinear accelerator models. When the floors and ceilings become effective, a new set of initial conditions is, in effect, imposed on the time series. If these new "initial conditions" result in the sign of the coefficient of the dominant root changing, then in time the direction of the movement of income will be changed. The effects of monetary constraint can also be interpreted in this manner.

Following Goodwin and Hicks we will assume that the value of β is so large that, unless it is constrained, the accelerator-multiplier process will generate an explosive time series. The solution of the accelerator-multiplier model will be $Y_t = A_1\mu_1^t + A_2\mu_2^t$ where $\mu_1 > \mu_2 > 1$ and the initial conditions are such $(Y_1/Y_0 > \mu_2)$ that A_1 and A_2 are both positive. For the range of magnitudes of Y_1/Y_0 which it seems sensible to posit, A_2 will be much larger than A_1. This means that at the early dates (t small) of the development the weight of μ_2 is high while at the later dates μ_1 dominates. The rate of growth of income generated by the explosive process being considered increases in time, approaching μ_1 as a limit.[6]

The increasing rate of increase of income that such an explosive accelerator process generates will in time be greater than the accepted possible rate of growth of productive capacity. In order to be able to maintain the continuity of the accelerator process, we assume that all the relations are in money terms and that the accelerator process may generate changes in the price level. We will, at a number of points, call attention to some specific effects of price level changes.

II. *The Accelerator Model with the Quantity of Money Constant*

In this and the following section we will derive several time series that result from the interaction of an accelerator-multiplier process

[5] If the two roots are equal, then the solution to the difference equation is $Y_t = A_1\mu_1^t + A_2t\mu_1^t$ (see Baumol, *op cit.*, Ch. 10, 11). If $Y_1/Y_0 = \mu_1$, then $A_2 = 0$ and a constant-rate-of-growth series is generated. If $Y_1/Y_0 < \mu_1$, then $A_1 < 0$ and in time $Y_t < Y_{t-1}$; if $Y_1/Y_0 > \mu_1$, then $A_2 > 0$ and, at least in the early days, the rate of increase of income is significantly greater than μ_1. In terms of a second-order difference equation, a steady rate of growth of income can be characterized as a knife edge: it requires not only that α and β be such that $\mu_1 = \mu_2 > 1$ but also that $Y_1/Y_0 = \mu_1$ (see S. S. Alexander, "The Accelerator as a Generator of Steady Growth," *Quart. Jour. Econ.*, May 1949, LXIII, 174-97.

[6] In Sections II and III a number of tables will be exhibited to illustrate the results of combining an explosive accelerator-multiplier process with a number of different monetary systems. In each case it is assumed that $\alpha = .8$, $\beta = 4$, $Y_0 = 100$ and $Y_1 = 110$. For these values $\mu_1 = 3.73$, $\mu_2 = 1.07$, $A_1 = 1.1$ and $A_2 = 98.9$ so that $Y_t = 1.1(3.73)^t + 98.9(1.07)^t$. In time Y_{t+1}/Y_t will approach 3.73.

and various types of monetary systems. The monetary systems to be considered are classified in terms of the monetary changes which can take place. Monetary changes are changes in either the velocity of circulation or the quantity of money. Therefore we will consider the following alternative monetary systems: (A) neither velocity nor quantity changes; (B) only velocity changes; (C) only quantity changes; (D) both velocity and quantity change.[7] The first two monetary systems will be considered in this section, the last two in the next section.

Except in the first monetary system, we assume that there exists a fractional reserve banking system. The money supply is changed by either the creation of deposits in exchange for business firms' debts or the destruction of deposits by business firms' repayment of bank debt. That is, the banking system is a commercial banking system rather than one that deals in government and other securities.[8] In all that follows the central bank's relations with the commercial banks are integrated into the "monetary system." For example, an infinitely elastic money supply can be achieved by a central bank lending to commercial banks, or by a central bank purchasing open market paper. Also in a monetary system we include the specialized financial intermediaries.

The income velocity of money and the liquidity preference relation can be characterized as mirror images of each other.[9] When income velocity rises, the liquidity of the economy falls and vice versa. A useful construction is to assume that for each level of money income Y, there exists a minimum quantity of money M_T which is necessary to sustain the volume of payments associated with Y. If M_T is the total quantity of money in existence then there is no money available for portfolio use; we have a maximum income velocity of money V_m for

[7] Cases A and B, where the quantity of money is constant, may be thought of as worlds of 100 per cent money. If at the "initial point" excess liquidity exists, so that velocity can increase, it is Case B, otherwise it is Case A. Case C(1), where the money supply is infinitely elastic, is a world of a paper-money authority which ignores price-level considerations (perhaps a world in which the central bank follows a "needs of business" rule). Case C(2), where the quantity of money has an exogenously determined rate of growth, is a gold-standard world where gold production is autonomous and determines the rate of growth of the money supply. Case D of course is similar to the existing monetary system.

[8] Some of the differences between the classical quantity theory of money and the Keynesian liquidity preference theory of money can be imputed to the way in which the banking system is assumed to operate. The quantity theory approach is consistent with bank lending to business (commercial banking) whereas the liquidity preference theory follows from banks purchasing securities on the open market. In commercial banking an increase in the quantity of money enables a business firm to effect a decision to purchase goods and services. On the other hand, open-market operations substitute money for another asset in the portfolios of the public, and whether or not purchases of goods and services result depends upon the reaction of the public to this change in liquidity.

[9] A. C. Pigou, *Keynes's General Theory* (London, 1951); H. S. Ellis, "Some Fundamentals in the Theory of Velocity," *Quart. Jour. Econ.*, May 1938, LII, 431-72.

each Y, so that $M_T \cdot V_m = Y$. If M is greater than M_T then the actual velocity, V, is less than V_m. The difference between M and M_T is M_L, the amount of money which is held as a liquid asset. If the quantity of money is constant, portfolio money M_L must fall when V rises.

If $V < V_m$ then $M_L > 0$. Abstracting from changes in the quantity of money, with $M_L > 0$, the interest rate is determined by the demand curve for investment, *ex ante* saving, and the terms upon which holders of liquidity are willing to substitute earning assets for money. Similarly, if $M_L = 0$, then the interest rate is determined by the demand for investment, the supply of saving and the terms upon which individuals are willing to hold cash as an asset. With a given money supply in excess of M_T there exists a rate of interest at which households and business firms as a whole are not willing either to increase or to decrease their holdings of money. Any other market interest rate involves either an increase in cash balances so that savings are utilized to increase liquidity, or a decrease in cash balances so that investment is financed from the reservoir of purchasing power. It is assumed that changes in the market rate of interest will affect the amount of investment induced by a given change in income.

Assume that all investment is made by business firms. On a consolidated balance sheet of all firms, investment is represented by an increase in plant, equipment or work in progress, and it will be offset by an increase in liabilities (equity or debt) or a decrease in other assets (cash or liquid assets). Business investment can be equity-financed as a result of either *ex ante* saving by households and firms or a decrease in the cash balances of households. Business investment can be debt-financed as a result of *ex ante* saving by households, a decrease in households' cash balances or by an increase in bank debt of business firms. The financing of investment by a decrease in the cash (liquid assets) balances of firms does not affect either the debt or the equity liabilities of firms: it only makes firms less liquid.

Whereas *ex ante* saving and decreases in the liquidity of households can be used for either debt or equity financing of investment, increases in the quantity of money can be used only for the debt financing of investment. Households, business firms, and banks are sensitive to the composition of the balance sheets of firms; in particular an increase in the ratio of debt to equity or a decrease in the ratio of cash to other assets in firms' balance sheets will make business firms less willing to borrow and households and banks less willing to lend. Hence if investment is financed in such a way as either to increase the ratio of debt to total liabilities or to decrease the liquidity of business firms, the amount of investment induced by a given change in income will fall. The value of the accelerator coefficient therefore depends upon

two variables, the market rate of interest and the structure of the balance sheets of firms. Changes in these variables can dampen what otherwise would be an explosive movement of income.

A. *Neither Velocity nor Quantity Changes*

Using the Swedish concepts,[10] we define $Y_{t-1} - C_t = (1 - \alpha)Y_{t-1}$ as *ex ante* saving. Assuming, as pure accelerator-multiplier models do, that all of investment is induced, then $I_t = \beta(Y_{t-1} - Y_{t-2})$ is identified as *ex ante* investment. From equations (1)-(3), it follows that for $Y_t \geq Y_{t-1}$ it is necessary that $I_t = \beta(Y_{t-1} - Y_{t-2}) \geq (1 - \alpha)Y_{t-1}$, for $Y_t < Y_{t-1}$ it is necessary that $I_t = \beta(Y_{t-1} - Y_{t-2}) < (1 - \alpha)Y_{t-1}$.

With a monetary system in which neither the velocity of circulation nor the quantity of money changes, if *ex ante* investment is greater than *ex ante* saving, the *ex ante* saving has to be rationed among investors, and the market in which this rationing takes place is the money market. The excess of demand over supply results in a rise in interest rates, which will continue until realized investment is equal to *ex ante* saving. In Figure 1, *ex ante* investment is based upon the

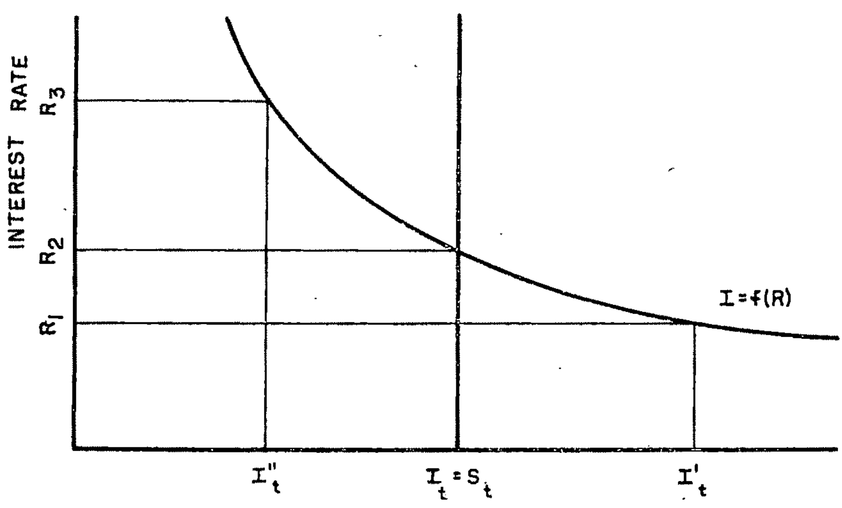

FIGURE 1. RECONCILIATION OF EX ANTE SAVING AND INVESTMENT

rate R_1 so that $\beta(Y_{t-1} - Y_{t-2}) = I_t'$. The inability to finance more than I_t $(=S_t)$ of investment results in a rise in the interest rate to R_2. Such a monetary system leaves no room for an accelerator-multiplier cycle. A necessary condition for the functioning of an accelerator

[10] B. Ohlin, "Some Notes on the Stockholm Theory of Savings and Investment," *Econ. Jour.*, Mar. and June 1937, XLVII, 53-69 and 221-40. Reprinted in American Economic Association, *Readings in Business Cycle Theory* (Philadelphia, 1951), pp. 87-130.

process during an expansion is that a source of financing of investment in addition to *ex ante* saving should exist.[11]

Symmetrically, if *ex ante* saving is greater than *ex ante* investment then an increase in investment is forced so that all of the available financing is absorbed by real investment. If there exists no way in which savings can be utilized other than in investment, then the terms upon which firms can finance investment must change so that realized investment is greater than *ex ante* investment. This equality of *ex ante* saving and realized investment stabilizes income, thereby halting the "inducement to disinvest."

B. *Only Velocity Changes*

With a constant money supply, realized investment can differ from *ex ante* saving only if the velocity of circulation of money changes. We will first take up the purely mechanical implications of the existence of a floor and a ceiling to velocity. We will then consider the effects on the value of the accelerator coefficient of changes in velocity when no excess liquidity exists and when excess liquidity exists (the Keynesian liquidity trap). To the extent that a fixed money supply and a ceiling to velocity set an upper limit to the money value of income, secular growth requires a falling price level, and this has implications for the accelerator process.

We have assumed that the interest rate and the balance-sheet structure of firms (liquidity and the debt-equity ratio) affect the value of the accelerator coefficient. The financing of investment by absorbing idle cash balances does not necessarily change the debt-equity ratio of business firms, for we can assume that the debt-equity preferences of households are not strikingly different when *ex ante* saving and when idle cash balances are used to finance investment.[12] Therefore the

[11] A fall in the price level of investment goods may result in S_t of monetary savings being sufficient to finance I_t of real investment. Conversely a rise in the price level of investment goods will lower the amount of real investment that a given amount of money savings can finance. In Figure 1 the savings curve can be read as a supply curve and the investment curve as the demand curve (with respect to price) for investment goods at a fixed interest rate. Then reading R_2 and R_1 as price levels, the accelerator phenomenon determines the price level of investment goods. This interpretation of Figure 1 must be what a writer who uses a ceiling to investment-goods production in his models has in mind (for example, Goodwin, *op. cit.*). In the original interpretation of Figure 1, even if I_t' of investment is financed, the supply conditions of investment goods (with respect to price) may be such that spending I_t' on investment goods results in a rise in the price of investment goods; as indicated earlier the accelerator process can lead to a rising price level.

[12] J. G. Gurley and E. S. Shaw, "Financial Aspects of Economic Development," *Am. Econ. Rev.*, Sept. 1955, XLV, 515-38, discuss the effect of available assets on saving behavior. It may be true that the asset preferences of households when using cash balances are different from their preferences when using *ex ante* saving to finance firms. In this connection, the legal and traditional limitations on the portfolios of financial intermediaries no doubt tend to affect business investment.

balance sheets of investing firms do not deteriorate during an expansion financed by increasing velocity. Of course the liquidity of households and firms is reduced but, unless the liquidity trap is operative, this is reflected in the interest rate. Therefore in this section only the interest rate and, in the liquidity-trap situation, the changes in liquidity at a constant interest rate can affect the accelerator coefficient.

Assume that a cumulative rise in income is set off. This increases the quantity of money needed for transaction purposes and, therefore, as the process continues there are progressively smaller asset holdings of money which can be used to finance investment in excess of *ex ante* saving. The highest attainable level of money income is that level at which all of the available money supply is required for transactions (see Table I). At that income realized investment cannot exceed *ex ante* saving. Realized investment equal to *ex ante* saving results in a constant income which, given the accelerator assumption, induces zero investment. Ignoring any effects that the interest-rate and balance-sheet changes accompanying velocity increases have upon the accelerator coefficient, a monetary system with a constant quantity of money may impose a ceiling to money income. This ceiling is not determined by full employment or by the capacity of the investment goods industries; it is determined by the limited ability of changes in velocity to finance investment.

TABLE I.—ONLY VELOCITY CHANGES

(Constant Money Supply—No Interest-Rate Effects)

Time	Accelerator Process $\alpha=.8$, $\beta=4.0$ $Y_0=100$, $Y_1=110$					Monetary System Money Supply=100 Maximum Velocity=2	
	Y	C	Savings *Ex Ante*	Investment		Investment Financed by ΔV[a]	Realized Velocity
				Ex Ante	Realized		
0	100	—	—	—	—	—	1.00
1	110	80	20	—	30	10	1.10
2	128	88	22	40	40	18	1.28
3	174	102	26	72	72	46	1.74
4	200	139	35	184	61	26	2.00
5	200	160	40	104	40	0	2.00
6	160	160	40	0	0	−40	1.60

[a] Investment in excess of *ex ante* saving. Obviously negative investment financed by ΔV means that *ex ante* saving is greater than investment.

Symmetrically if a minimum velocity exists, a floor to money income exists. However the floor is not entirely symmetrical with the ceiling, and in this paper the lower turning point is essentially unexplained.

Let us examine what would be happening in the money market

during a process such as is detailed in Table I. Ignoring the liquidity trap, a rise in transaction money as income rises means that with a constant money supply portfolio money becomes scarcer. The interest rate at which cash can be withdrawn from portfolios into the income stream rises as asset money is used to finance investment in excess of saving. With a fixed quantity of money and a rise in income, the balance sheets of households and firms show a smaller ratio of asset cash to total assets, liquidity decreases. The decrease in liquidity and the rise in the interest rate both tend to decrease the accelerator coefficient.

Alternatively, on the downswing *ex ante* investment is smaller than *ex ante* saving. With a constant money supply, this excess saving is

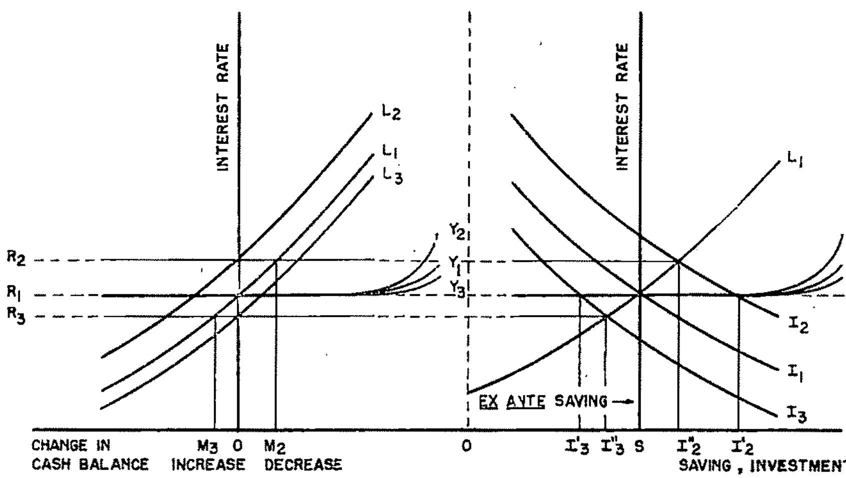

FIGURE 2. SAVING, INVESTMENT, AND CASH BALANCES

absorbed by a reduction in velocity. Money available for asset purposes increases as it is withdrawn from the income stream. The interest rate falls and the liquidity of the community rises so that the amount of disinvestment induced by the given downward shift in demand decreases. Both on the upswing and the downswing, the monetary system which is based solely upon changes in velocity acts as a stabilizer of realized induced investment unless the fall in income is so great that the money released from transaction purposes lowers the interest rate to the floor interest rate of the liquidity trap. At this interest rate the stabilizing effect upon aggregate disinvestment of the fall in financing terms will cease, although increasing liquidity can continue to act as a stabilizer.[13]

Figure 2 illustrates the use of cash balances to finance investment

[13] Increasing liquidity raising the consumption coefficient is of course the "Pigou effect."

and to offset *ex ante* saving. At the interest rate R_1, and income Y_0, the velocity of circulation of money remains constant. This is illustrated by the L_1 curve intersecting the zero change in cash balances line at R_1. At higher interest rates cash assets would be freed to finance investment; at lower interest rates saving would be absorbed by cash balances. The amount of investment which can be financed at any interest rate is equal to the sum of *ex ante* saving and the change in cash balances. Assume that income rises so that at the interest rate R_1, I_2' of investment is induced. The I_2 curve illustrates how the value of the accelerator would be changed by a change in interest rates. The excess of demand over the supply of finance results in a rise of the interest rate to R_2. As I_2'' is greater than *ex ante* saving, income will rise and the transaction demand for cash will increase. This will raise the schedule relating the change in cash balances to the interest rate to L_2, so that the interest rate at which investment will be financed by a fall in liquidity will be higher.

If a fall in income shifts the investment demand curve to I_3, *ex ante* investment is I_3'. With a constant money supply the excess of *ex ante* saving over induced investment will depress the interest rate, and realized investment will be $I_3'' > I_3'$, OM_3 being added to cash balances. As $S > I_3''$ income will fall, and this will shift the liquidity curve downward so that cash balances can be used to finance investment at an interest rate lower than R_1.

If the cash balance-interest rate relation is as the Y_3, Y_2 and Y_1 set of curves indicate, then excess liquidity exists; this is the Keynesian liquidity trap situation. With an investment curve I_2, $I_2' - S$ of investment will be financed by a decrease in cash balances; and if the investment curve is I_3, $S - I_3'$ will be added to cash balances. In both cases no change in interest rates will occur. In the Keynesian liquidity trap situation the money market damps down neither the "boom" nor the "bust." On the boom side, the liquidity trap will exist until the need of cash for transactions absorbs a sufficiently large portion of the money supply so that the Keynesian liquidity trap comes to an end. There is no endogenous limiting factor to the liquidity trap on the downswing aside from the effect that improved liquidity has upon firms' balance sheets. Therefore the Keynesian liquidity trap situation allows full scope to an explosive accelerator coefficient. And in the upswing, an explosive accelerator process will generate greater increases in money demand than the increases in productive capacity, so that a strong accelerator in combination with excess liquidity will generate large price increases.

Either the ceiling to velocity or the effect of rising interest rates and decline in liquidity upon the accelerator coefficient will break the

cumulative expansion. A fall in money income will occur. The quantity of money needed for transactions falls, and *ex ante* saving which is not realized in investment will result in the addition of money to portfolios. If the price level does not fall during a depression the ceiling real income remains fixed, while if the price level falls, even though the ceiling money income remains fixed, the ceiling real income rises.

Net investment implies an increase in productive capacity. With a constant money supply and in effect a ceiling to velocity, larger real incomes can be realized only if the price level falls. To the extent that the accelerator inducement to invest is large only when income is approximately equal to productive capacity, strong expansions can only occur if the price level falls secularly.

The effect of the expectation that in the long run the price level will fall is to increase the expected pay-off period of an investment. This is equivalent, in its effect upon investment by firms, to a rise in interest rates with a constant price level, so that a falling price level will tend to lower the value of the accelerator coefficient. Therefore the business cycle will be characterized by weaker booms than would occur with a permissive monetary system. Such a monetary system will be associated with a tendency toward relatively stable income for, unless liquidity is greatly increased during a downswing, long periods in which realized investment exceeds *ex ante* saving cannot occur.

III. *The Accelerator Model with Quantity of Money Variable*

In this section we will consider two monetary systems, those in which only the quantity of money can change and those in which both the quantity of money and its velocity can change.

We assume that commercial banks create money by lending to business firms. The maximum realized increase in the money supply is equal to the difference between *ex ante* investment and *ex ante* saving:

$$\Delta M = ex\ ante\ I - ex\ ante\ S = \Delta Y$$

Assume that $V = \frac{Y}{M} = \frac{\Delta Y}{\Delta M} = 1$. The increase in the money supply in the hands of households is the asset which makes the change in net worth equal to *ex ante* investment.[14] As income velocity is 1, there will

[14] Assume that *ex ante* $I >$ *ex ante* S, realized $I =$ *ex ante* I; also that (*ex ante* I — *ex ante* S) is financed by an increase in bank debt. The changes in the consolidated balance sheets of households, business firms and banks will be:

Households

Debt and Equity of Firms	+(*ex ante S*)	Net Worth	+(*ex ante I*)
Demand Deposits	+(*ex ante I* — *ex ante S*)		

be no net change in the quantity of money that individuals hold as assets. This is equivalent to assuming that the interest rate at which banks lend to business is the interest rate at which money and earning assets are substituted in household portfolios.[15] The only relevant monetary change in these models is in the quantity of money.

When the money supply increases at an independently given rate, the autonomous increase in the money supply is not necessarily equal to the difference between *ex ante* investment and *ex ante* saving. If the increase in the money supply is greater than the difference between *ex ante* investment and *ex ante* saving we assume that this difference accumulates in the banking system (as excess reserves) and can be used to finance future investment. If the increase in the money supply is less than the difference between *ex ante* investment and *ex ante* saving, realized investment will be less than *ex ante* investment and the increase in income will be equal to the increase in the money supply.

For each monetary system we will first investigate the mechanical properties of these relations, assuming that the accelerator coefficient does not change, and then investigate the possible effects of the associated money market and financing developments upon the value of the accelerator coefficient.

A. *Quantity Changes but Not Velocity*

Two monetary systems in which only the quantity of money can change will be taken up. In the first, the money supply will be assumed to be infinitely elastic, and in the second the money supply will be assumed to increase at a fixed arithmetic or geometric rate.

1. *Infinitely elastic money supply.* If the quantity of money can increase without limit then no matter what the difference between *ex ante* investment and *ex ante* saving, the difference can be financed. Also we can assume that the terms upon which the banking system

Firms

Productive Assets	+(*ex ante I*)	Debt and Equity to Households	+(*ex ante S*)
Demand Deposits	(no change)	Debts to Banks	+(*ex ante I*−*ex ante S*)

Banks

Debts of Firms	+(*ex ante I*−*ex ante S*)	Demand Deposits	+(*ex ante I*−*ex ante S*)

[15] Alternatively if the liquidity-trap rate of interest rules, even if $V > 1$, the rise in the quantity of money in excess of transaction needs can all be absorbed by households' portfolios without lowering the interest rate. However, in this case any rise (virtual) in the interest rate would imply a substitution of earning assets for money in the portfolios of households. This then becomes a case of financing investment from cash balances. If $V > 1$ the money supply and firms' debts to banks do not increase as rapidly as income.

lends do not change. Such a monetary system is consistent with the existence of an explosive accelerator process since it permits a cumulative rise in money income. Is there anything inherent in the operations of such a monetary system which will lead to a dampening of the accelerator process? (We will ignore the political repercussions of the cumulative rise in prices which is implicit in a full-employment situation in which the rate of growth of money income is greater than that of productive capacity.)

TABLE II.—INFINITELY ELASTIC MONEY SUPPLY
(Constant Velocity—No Interest-Rate Effects)

Time	Accelerator Process $\alpha=.8$ $\beta=4$ $Y_0=100$					Monetary System All *ex ante* S used for equity financing. All increases in money used for debt financing.	
	Y	C	Savings *Ex Ante*	Investment *Ex Ante* $\beta(Y_{t-1}-Y_{t-2})$	Investment Realized	Δ Money Supply	ΔEquity Financing / ΔTotal Investment
0	100.	—	—	—	—	—	—
1	110.	80.	20.	—	30.	10.	.67
2	128.	88.	22.	40.	40.	18.	.55
3	174.	102.	26.	72.	72.	46.	.36
4	323.	139.	35.	184.	184.	149.	.19

During an expansion, the increase in money supply occurs as investing firms add bank debt to their liabilities (see Table II). Assuming that the percentage distribution of *ex ante* saving between debt and equities of business firms is constant, a cumulative explosive expansion on the basis of the creation of money will (*ceteris paribus*) result in a fall in the ratio of equity to debt in the balance sheet of firms.[16] Even if the terms upon which firms can borrow are unchanged by the

[16] Total induced investment is $\beta(Y_t - Y_{t-1})$. *Ex ante* saving is equal to $(1-\alpha)Y_t$. Assuming that a constant proportion of *ex ante* saving is used for equity financing, the latter is $\lambda(1-\alpha)Y_t$. The ratio of the change in equity to total investment, therefore is:

$$\frac{\lambda(1-\alpha)Y_t}{\beta(Y_t - Y_{t-1})} = \frac{\lambda(1-\alpha)}{\beta\left(1 - \frac{Y_{t-1}}{Y_t}\right)}$$

The general solution to the second-order explosive accelerator process is of the form $Y_t = A_1\mu_1^t + A_2\mu_2^t$ where $\mu_1 > \mu_2 > 1$. Therefore, we can write:

$$\frac{Y_{t-1}}{Y_t} = \frac{A_1\mu_1^{t-1} + A_2\mu_2^{t-1}}{A_1\mu_1^t + A_2\mu_{2t}} = \frac{1 + \frac{A_2}{A_1}\left(\frac{\mu_2}{\mu_1}\right)^{t-1}}{\mu_1 + \left(\frac{A_2}{A_1}\right)\left(\frac{\mu_2}{\mu_1}\right)^{t-1}\mu_2}$$

deterioration of their balance sheets, borrowers' risk will rise.[17] This will lower the amount of investment induced by a given rise in income. Hence, even with a monetary system that permits all of *ex ante* investment to be realized, the financing of investment by bank debt can result in lowering the accelerator coefficient which in turn lowers the rate of increase of income. This continues until the accelerator coefficient falls sufficiently to replace the explosive by a cyclical time series, in which there eventually occurs a fall in income. With a fall in income, the excess of *ex ante* saving over induced investment will be utilized to reduce bank debt. Also, the failure of some firms which have relied heavily upon debt financing will result in the substitution of equity for debt in balance sheets. Both changes during the downswing raise the ratio of equity to debt in firms' balance sheets[18] which acts as a

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The limit of $\left(\frac{\mu_2}{\mu_1}\right)^t_{t\to\infty} = 0$, therefore the limit of $\left(\frac{Y_{t-1}}{Y_t}\right)_{t\to\infty}$ is $\frac{1}{\mu_1}$.

Hence $\frac{\lambda(1-\alpha)Y_t}{\beta(Y_t - Y_{t-1})}$ approaches as a limit $\frac{\lambda(1-\alpha)}{\beta\left(1-\frac{1}{\mu_1}\right)}$.

In the early stages of an explosive accelerator process the ratio of $\frac{Y_{t-1}}{Y_t} > \frac{1}{\mu_1}$. Therefore, the ratio of equity financing to total investment decreases as the accelerator process continues.

[17] M. Kalecki, "The Principle of Increasing Risk," *Economica*, N. S., Nov. 1937, IV, 440-47.

[18] On the downswing (*ex ante* $S >$ *ex ante* I), the balance sheets of the three sectors change as follows:

Banks

Business Debt	$-$(*ex ante* S $-$*ex ante* I) $= -\Delta M$	Demand Deposits	$-$(*ex ante* S $-$*ex ante* I) $= -\Delta M$

Firms

Capital Equipment	$+$*ex ante* I	Debt and Equities to Households	$+$*ex ante* S
		Debt to Banks	$-$(*ex ante* S $-$*ex ante* I) $= -\Delta M$

Households

Demand Deposits	$-$(*ex ante* S $-$*ex ante* I) $= -\Delta M$	Net Worth	$+$*ex ante* I
Business Assets	$+$*ex ante* S		

If failures occur in the account of households labeled Business Assets, equities will be substituted for debt and in the account of business firms labeled Debt and Equities to Households, equity will be substituted for debt. Also as business firms fail banks acquire titles and debts which are considered unsuitable for bank portfolios. The sale of such assets to the public results in the substitution of business assets for demand deposits in

stabilizer. The endogenous limits to an explosive accelerator process, in the absence of restrictions on the money supply, are the deterioration of firms' balance sheets due to debt-financing of investment on the upswing; and the reverse circumstances during the liquidation process on the downswing.

Two possible offsetting factors to the increasing debt-equity ratio in the financing of investment during an explosive expansion are an increase in the ratio of *ex ante* saving flowing to equities and the capital gains that accompany an increase in the price level of capital goods. As *ex ante* saving finances a decreasing proportion of total investment during an explosive expansion, a possible increase in the proportion of *ex ante* saving flowing to equities cannot for long prevent a deterioration of the balance sheets of firms. If, however, cumulative price-level inflation is politically permissible a deterioration of firms' balance sheets need not occur. Business firms are borrowers and the real burden of a debt decreases with a rise in the price level. If the assets of business firms are valued at their current replacement costs, then the rising price level raises the equity account. Such capital gains improve the balance sheets of firms and they occur generally in an inflation. The price-level rise plus the flow of *ex ante* saving to equity investment may be sufficient to keep the debt-equity ratio constant, thereby preventing any deterioration in the balance sheets of firms. However, this requires an increasing rate of change in the price level of capital goods.[19] Nevertheless, if an explosive inflation is politically

the public portfolios, and in a net reduction of demand deposits. These changes obviously do not affect the net worth of households and the capital equipment accounts. However, as the value of productive capacity may be reduced during a downturn, the value of the capital equipment account of firms and the net worth account of households may be reduced; the equity liabilities of firm and equity assets of households lose a part or all of their value. This in turn can affect the "subjective" preferences of households and firms so that liquidity preference rises.

[19] In the arithmetic example of Table II, in time-period 3, only .36 of the total new investment was financed by savings. If, in period 3, the price level of capital goods rose so that the value of existing capital goods rose by 2.0, then the ratio of the increase in equity to the increase in assets would be .5. In period 4 only .19 of a larger total investment was financed by savings. For the ratio of the increase in equity to the increase in the value of the assets to be .5, the value of existing capital must rise by 11.4. As total assets in period 4 are presumably only slightly larger than in period 3, this implies that the rate of increase in the price level of capital goods must rise if a constant ratio of equity to total assets is to be maintained. For example:

Period	3	4
Saving, *ex ante*	26.0	35.0
I realized	72.0	184.0
Δ money	46.0	149.0
Required Δ value of existing capital	20.0	114.0
Δ equity $= S + \Delta$ value	46.0	149.0
Δ assets $= I$ realized $+ \Delta$ value	92.0	298.0
Ratio of Δ equity to Δ assets	.5	.5

tolerable, there is no endogenous reason why an accelerator process with an infinitely elastic money supply need come to a halt.

Therefore, at least two monetary situations allow full scope to an explosive accelerator process: the Keynesian liquidity trap and an infinitely elastic money supply. It is perhaps no accident that the emphasis upon "real" floors and ceilings as causes of the nonlinearity of the accelerator coefficient occurred at a time when the high volume of government bonds outstanding and their support by central banks made the money supply in fact infinitely elastic. An era of tight money on the other hand naturally leads to an examination of the monetary prerequisites for the operation of the accelerator phenomena.

2. *Money supply increases at a fixed rate.* A monetary system in which the rate of growth of the money supply is exogenously given, for example a fractional reserve banking system based upon a gold standard, is equivalent to an infinitely elastic money supply if the difference between *ex ante* investment and *ex ante* saving does not exceed the per-period growth of the money supply. The only endogenous limitation to expansion in this case comes from the deteriorating balance sheets and liquidity of business firms, as is true with an infinitely elastic money supply. The interesting alternative exists when the difference between induced investment and *ex ante* saving is greater than the rate of growth of the lending ability of banks.

Throughout this section we will assume that at the initial period the banking system does not possess excess liquidity. Hence the available financing is equal to *ex ante* saving plus the possible increase in the money supply. If induced investment is equal to or greater than this, realized investment will be constrained to the available financing. In this case income will grow at the same rate as the money supply.[20]

(a) *Arithmetic rate of increase in the money supply.* If the money supply increases by a fixed amount per period (constant arithmetic rate of increase), income will grow at this rate until *ex ante* saving increases sufficiently so that induced investment per period becomes less than the available financing. When this happens, the per-period increase in income will fall below what it had been, and therefore induced investment will decrease. The downturn occurs when *ex ante* saving catches up with the expansion process so that all of the investment induced by the constant arithmetic rate of growth of income can be realized without using all of the newly available credit.[21] (This case is illustrated in Table III.)

[20] $\beta(Y_t - Y_{t-1}) > (1-\alpha)\, Y_t + \Delta M$ and $Y_t = M_t$; so that $Y_{t+1} = \alpha Y_t + (1-\alpha) Y_t + \Delta M$; $Y_{t+1} = Y_t + \Delta M$.

[21] In an accelerator-multiplier model a necessary condition for $Y_t > Y_{t-1}$ is that $\beta(Y_{t-1} - Y_{t-2}) > (1-\alpha) Y_{t-1}$. We posit an arithmetical increase in the money supply per period of ΔM so

TABLE III.—ARITHMETICALLY INCREASING MONEY SUPPLY
(Constant Velocity—No Interest-Rate Effects)

Time	Accelerator Process $\alpha=.8$ $\beta=4$					Monetary System +10 per time period
	Y	C	Savings *Ex Ante*	Investment: Induced $\beta(Y_{t-1}-Y_{t-2})$	Investment: Realized	Investment Financed by Increased Money Supply
0	100.0	—	—	—	—	—
1	110.0	80.0	20.0	—	30.	+10.0
2	120.0	88.0	22.0	40	32.	+10.0
3	130.0	96.0	24.0	40	34.	+10.0
4	140.0	104.0	26.0	40	36.	+10.0
5	150.0	112.0	28.0	40	38.	+10.0
6	160.0	120.0	30.0	40	40.	+10.0
7	168.0	128.0	32.0	40	40.	+ 8.0
8	166.4	134.4	33.6	32	32.	− 1.6[a]

[a] In time period 7, *ex ante* $S+\Delta M>$ *ex ante* I; therefore $Y_7-Y_6<\Delta M$. As a result, in time period 8 the accelerator expansion is broken.

During the expansion, the demand for financing is always greater than the available supply; the money market constrains investment. When the arithmetic increase in income becomes less than the increase in the money supply financing conditions ease. The resulting decline in the rate of interest may act to increase the inducement to invest (decrease the inducement to disinvest); this possibility is ignored in Table III. Since the banking system finances a decreasing proportion of realized investment during the expansion, the deterioration of the balance sheets of investing firms will be limited during such an expansion.

When income declines, the autonomous increases in the money supply result in an accumulation of excess reserves in the banking system, and *ex ante* saving in excess of induced investment results in a repayment of bank debt by firms. These changes should brake the decline in income.

The accumulation of excess reserves by banks and the improved balance sheets of firms during the downswing implies that if an expan-

that the available financing is $(1-\alpha)Y_{t-1}+\Delta M$: hence if $\beta(Y_{t-1}-Y_{t-2})\geqq(1-\alpha)Y_{t-1}+\Delta M$ then realized investment is $(1-\alpha)Y_{t-1}+\Delta M$. Hence $Y_t=Y_{t-1}+\Delta M$ so that $\beta(Y_t-Y_{t+1})=\beta\Delta M$ which we once again assume $>(1-\alpha)(Y_{t-1}+\Delta M)$ so that $Y_{t+1}=Y_{t-1}+2\Delta M$. Eventually $\beta(Y_{t+n}-Y_{t+n-1})=\beta\Delta M<(1-\alpha)(Y_{t-1}+n\Delta M)+\Delta M$; so that $Y_{t+n+1}<Y_{t+n}+\Delta M$; therefore $\beta(Y_{t+n+1}-Y_{t+n})<\beta(Y_{t+n}-Y_{t+n-1})$ and the accelerator process turns down.

sion begins it will not at once be constrained by the money-market and balance-sheet effects. If the arithmetic rate of growth of the money supply is small compared to the accumulation of financing ability during the decline in income, a sharp fall in investment will occur at the date that the accumulated financing ability is absorbed, thereby decreasing the per-period increase in income. The smaller increase in income will lead to a fall in induced investment, and a sharp fall in income may occur. A constant arithmetic rate of increase of the money supply in conjunction with an explosive accelerator process will tend to generate a cyclical time series.

(b) *Geometric rate of increase in the money supply.* Consider a money supply that increases at a constant geometric rate, μ_3. As was noted earlier the solution of an explosive accelerator process can be written as $Y_t = A_1\mu_1^t + A_2\mu_2^t$ with $\mu_1 > \mu_2 > 1$ with A_1 and A_2 depending upon the initial conditions. That is, the rate of growth of income is a weighted average of the two rates of growth μ_1 and μ_2. If μ_3, the rate of growth of the money supply, is greater than (or equal to) μ_1, the greatest rate of growth that income can achieve, the system behaves as if the money supply were infinitely elastic. Hence the cases that have to be examined are when $\mu_1 > \mu_2 > \mu_3 > 1$ and when $\mu_1 > \mu_3 > \mu_2 > 1$.

Take first the case in which $\mu_1 > \mu_2 > \mu_3 > 1$. With no excess liquidity, the maximum attainable rate of growth of income is the rate of growth of the money supply. To sustain this rate of growth, it is necessary that induced investment be equal to or greater than the available financing. When the rate of growth of the money supply, and therefore the rate of growth of income, is less than μ_2 induced investment will not be large enough to absorb the available financing.[22] The rate of growth of income will be smaller than the rate of growth of the money supply, and this new smaller rate of growth of income also will not be sustained. These progressively smaller rates of growth of income

[22] Assume $M_{t-1} = Y_{t-1}$ and $M_t = Y_t = \mu_3 M_{t-1} = \mu_3 Y_{t-1}$.

$$\beta(\mu_3 - 1)Y_{t-1} - [(1-\alpha)\mu_3 Y_{t-1} + (\mu_3 - 1)\mu_3 M_{t-1}] \geqq 0$$

is necessary for $Y_{t+1} = \mu_3 Y_t$. Therefore $\beta(\mu_3 - 1) - (1-\alpha)\mu_3 - (\mu_3 - 1)\mu_3 - \epsilon = 0$, so that $\mu_3^2 - (\alpha+\beta)\mu_3 + \beta + \epsilon = 0$. It follows that

$$\mu_3 = \frac{\alpha + \beta \pm \sqrt{(\alpha+\beta)^2 - 4(\beta+\epsilon)}}{2}.$$

The relevant root is

$$\mu_3 = \frac{\alpha + \beta - \sqrt{(\alpha+\beta)^2 - 4(\beta+\epsilon)}}{2}$$

and if $\epsilon = 0$ (induced investment is equal to *ex ante* saving plus the increase in the money supply), $\mu_3 = \mu_2$; if $\epsilon > 0$ (induced investment greater than *ex ante* saving plus the increase in the money supply) $\mu_3 > \mu_2$. Therefore a rate of growth of the money supply equal to or greater than the smaller root of the accelerator process is a necessary condition for self-sustained growth.

will in time result in insufficient induced investment to offset *ex ante* saving and at this date income will fall. Therefore, if the rate of growth of the money supply is smaller than the smallest rate of growth that the accelerator process, if unconstrained, would generate, an upper turning point in income will be produced.[23]

The argument as to what happens once income turns down for a geometric rate of increase in the money supply is essentially the same as for an arithmetic increase in the money supply. Excess reserves accumulate in the banking system and firms' balance sheets improve during the downward movement. Once a sufficient upward movement again begins, an unconstrained expansion can take place until the excess liquidity is absorbed, at which time the rate of growth of the money supply will again constrain the rate of growth of income. A money supply growing at "too small" a rate will lead to a cyclical rather than a steady-growth time series.

If the rate of growth of the money supply is equal to the smaller root of the accelerator process (*i.e.*, $\mu_3 = \mu_2$), both income and the money supply will grow at this rate. Throughout this process the ratio of *ex ante* saving to bank financing of investment will be constant. If this ratio is consistent with the balance-sheet goals, there is nothing in this process which would lead to a downturn in income. Also this rate of growth of income may be consistent with a fairly stable price level. Steady growth may result from combining an explosive accelerator process and an appropriately increasing money supply.[24]

Consider now the second case, in which $\mu_1 > \mu_3 > \mu_2 > 1$. In this case the rate of growth of income during any time period will depend upon the weight of the two roots. If the weight of μ_2 is high, then the accelerator process will generate a rate of growth of income less than the rate of growth of the money supply. However, since $\mu_1 > \mu_2$, in time μ_1 will dominate the rate of growth of income so that income will be increasing faster than the money supply. The money supply does not constrain the growth of income until the total growth of income equals

[23] This can be demonstrated by noting that $Y_0 = A_1 + A_2$ and $Y_1 = A_1\mu_1 + A_2\mu_2$ and given that $\mu_1 > \mu_2 > \mu_3 > 0$ and $Y_1 = \mu_3 Y_0$ then $A_1 = Y_0 - A_2$; $\mu_3 Y_0 = (Y_0 - A_2)\mu_1 + A_2\mu_2$ so that

$$\frac{Y_0(\mu_3 - \mu_1)}{\mu_2 - \mu_1} = A_2.$$

As $Y_0 > 0$, $\mu_3 - \mu_1 < 0$ and $\mu_2 - \mu_1 < 0$, $A_2 > 0$.

Also $A_2 = Y_0 - A_1$, $\mu_3 Y_0 = A_1\mu_1 + (Y_0 - A_1)\mu_2$ so that

$$\frac{Y_0(\mu_3 - \mu_2)}{\mu_1 - \mu_2} = A_1.$$

As $Y_0 > 0$, $\mu_3 - \mu_2 < 0$ and $\mu_1 - \mu_2 > 0$, $A_1 < 0$.

A_1 the coefficient of the dominant root μ_1 is negative. As $A_1\mu_1 + A_2\mu_2 > A_1 + A_2$ and $\mu_1 > \mu_2$ it follows that $|A_2| > |A_1|$. However in time $A_1\mu_1^t + A_2\mu_2^t$ will be <0, so income must turn down.

[24] That is, the Harrod-Domar case of steady growth can be the result of appropriate monetary conditions.

the total growth of the money supply. Whether this case results in steady growth or in a downturn of income depends upon what happens to the accelerator coefficient once the monetary constraint becomes effective.

At the beginning of such an explosive expansion the rate of growth of income is less than the rate of growth of the money supply. At the date when the total growth of income becomes equal to the total growth of the money supply the rate of growth of income will be greater than the rate of growth of the money supply. Therefore at some intermediate date, the rate of growth of income will be the same as the rate of growth of the money supply. This rate of growth of income will induce sufficient investment, at the financing terms and balance sheets ruling, for the rate of growth of income to increase. Therefore if the rate of growth of income is constrained to the rate of growth of the money supply, and the accelerator coefficient does not change, a sufficient amount of investment will be induced to generate a rate of growth of income greater than the rate of growth of the money supply.

However until the increase in income and in the money supply becomes equal, this system operates with excess liquidity. At the date that the excess liquidity is absorbed, the rate of growth of income will be greater than the rate of growth of the money supply so that when the monetary constraint becomes effective two things will occur: the rate of growth of income will fall and financing terms will rise. When financing terms were relatively easy because of excess liquidity a rate of growth of income equal to the rate of growth of the money supply induced sufficient investment to increase the rate of growth of income. However in a suddenly tight money market financing terms may so change that the accelerator coefficient will fall, and this can lead to a fall in income.

Nevertheless, if the money supply is growing at a geometric rate greater than the smaller root of the accelerator process, a constant rate of growth of income may be generated. In this case money income will grow at a faster rate than if the money supply grew at the rate given by the smaller root. Hence such a steady rate of growth of income can be associated with a substantial rate of increase in the price level. In addition, the ratio of bank financing to *ex ante* saving increases as the rate of growth of the money supply increases.

If the accelerator falls as a result of the tightening of the money market, income can turn down. The behavior of the economy with this monetary system on the downturn and on subsequent expansions would be essentially the same as in the previous case where the rate of growth of the money supply was smaller than the smaller root of the accelerator process.

B. *Both Velocity and Quantity Change*

The earlier consideration of the interaction of an otherwise explosive accelerator-multiplier process with monetary systems in which only changes in velocity and changes in the quantity of money can occur enables us to consider monetary systems in which both quantity and velocity of money can change. We first assume that the quantity of money is changing but that velocity is greater than 1, we then consider the effects of changing velocity. Finally we take up changes in liquidity preference.

1. In the cases where investment in excess of *ex ante* saving is financed by an increase in the quantity of money, we assumed that the income velocity of money was 1. We can now drop this assumption. If income velocity is greater than 1, and if an excess of *ex ante* investment over *ex ante* saving is financed by an increase in the quantity of money, then excess liquidity results. This excess liquidity can be utilized to finance investment.

Assume that the excess liquidity resulting from an investment initially financed by the banks is used to substitute business debt or equities to the public for business debt to banks. If $\Delta M = Y_t - Y_{t-1}$ and $V > 1$, then new transaction cash is

$$\frac{\Delta M}{V}, \text{ and asset cash is } \Delta M - \frac{\Delta M}{V} = \left(1 - \frac{1}{V}\right)\Delta M.$$

After the public purchases business debts or equities, the net increase in debt to banks is

$$\frac{1}{V}(Y_t - Y_{t-1})$$

and investment is $Y_t - \alpha Y_{t-1}$, therefore:

$$\frac{\Delta\text{Bank Debt}}{\Delta\text{Total Assets}} = \frac{\dfrac{Y_t - Y_{t-1}}{V}}{Y_t - \alpha Y_{t-1}} = \frac{1}{V}\,\frac{Y_t - Y_{t-1}}{Y_t - \alpha Y_{t-1}}$$

As an explosive accelerator process takes hold, the ratio $\dfrac{Y_t - Y_{t-1}}{Y_t - \alpha Y_{t-1}}$ rises and the ratio of the change in bank debt to the change in total assets approaches $\dfrac{1}{V}$. If the public's distribution of *ex ante* saving and excess liquidity between debt and equity assets is constant during an expansion, the balance sheets of business firms deteriorate. As the weight of bank financing is smaller than in the case of unit velocity,

the deterioration will not be so rapid as in the case in which bank creation of money is the sole technique by which investment in excess of *ex ante* saving can be financed. Therefore, the possibility that the deterioration of firms' balance sheets will lower the accelerator coefficient is smaller.

2. Note that in $\frac{1}{V}\,\frac{Y_t - Y_{t-1}}{Y_t - \alpha Y_{t-1}}$ a rise in velocity decreases the ratio of bank financing to the total change in assets and that a rise in the propensity to consume increases the dependence upon bank financing of investment. Therefore, autonomous or cyclically induced changes in these parameters can change the ratio of debt to equity financing, which can change the accelerator coefficient. In particular a rise in velocity tends to counteract the deterioration of firms' balance sheets in a business-cycle expansion financed by bank creation of money.

3. Autonomous or cyclically induced changes in the liquidity preference relation can change the dependence of an expansion upon changes in the money supply and therefore affect the ratio of bank debt to total assets of firms. If liquidity preference decreases, the excess of investment over *ex ante* saving can be financed by withdrawals from cash balances at lower interest rates than were previously ruling. Such an "autonomous" decrease in liquidity preference can, both by improving financing terms and by decreasing the dependence of business firms upon bank financing, raise the accelerator coefficient. A great stock-market boom, such as in the late 1920's, may be interpreted as reflecting a lowering of liquidity preferences; as a result business expansion could be financed with less reliance upon the banking system than otherwise.

Alternatively, an autonomous rise in liquidity preference may lead to the result that business borrowing from banks will increase the liquidity of households rather than finance investment. That is, a portion of business borrowing from banks ends up as "liquid hoards" of households. Such borrowing by business firms in excess of the difference between *ex ante* saving and realized investment will increase the rapidity with which firms' balance sheets deteriorate. An explosive accelerator process may be broken by such changes in liquidity preference.

Such changes in liquidity preference have been labeled autonomous. There exist plausible mechanisms by which the upward movement of an explosive accelerator process would lead to a fall in liquidity preference. However, there do not exist equally plausible mechanisms by which a rise in liquidity preference can be considered as endoge-

nous during an expansion. During a downswing there exists a plausible mechanism which can raise the liquidity preference of households. This can force a deterioration of firms' balance sheets, and thereby, through its effect upon the accelerator coefficient, a further fall in investment. There does not seem to be any endogenous factor which would lead to a fall in liquidity preference on a downswing. Changes in liquidity preference seem to be destabilizing.

IV. *Policy Implications*

Let us asume that the policy goal is steady growth at a stable price level. The policy measures to be used are monetary policy, which in the language of this paper means to choose a monetary system, and fiscal policy. It has been shown that steady growth requires a money supply that increases at a geometric rate: but that a too rapidly growing money supply results in rapid price inflation and that a too slowly growing money supply results in a downturn of income.

The smallest self-sustaining rate of growth of income is equal to the smaller root of the accelerator process, μ_2. If productive capacity can also grow at this rate, then the policy goal of growth without inflation is attainable. If the rate of growth of income is greater than the maximum possible rate of growth of productive capacity, the policy goal is not attainable. In the latter case, we assume that steady growth accompanied by secular inflation will be chosen in preference to a constant price level and intermittent growth. The policy goal therefore becomes steady growth with a minimum rate of secular inflation.

If the policy-makers prize steady growth and abhor falling income, and if secular inflation is accepted as the price that has to be paid for growth, then the policy-makers would be able to "play it safe" by allowing the actual rate of growth of the money supply to be greater than the minimum self-sustainable rate of growth of income. That is, the policy-makers would accept some unnecessary inflation in order to be on the safe side in maintaining full employment.

For a given consumption coefficient, the greater the rate of growth of the money supply, the greater the ratio of bank debt to debt and equities to households in the balance sheets of firms. Therefore the greater the rate of increase in the money supply, the greater the chance that induced investment will decrease because of the unsatisfactory nature of firms' balance sheets. Two policy measures which can counteract this effect are: (1) an interest rate policy designed to keep velocity greater than one; (2) a fiscal policy designed to increase the money supply without increasing business debt to banks.

It was shown that if income velocity is greater than one and if the money supply is being increased by business borrowing from banks,

the net increase in business borrowing from banks will be smaller than the difference between realized investment and *ex ante* saving. In order to achieve this result bank financing of business must be at a high enough interest rate to keep income velocity greater than one. But the accelerator coefficient also depends upon the interest rate. Thus if the monetary policy designed to keep income velocity greater than one is carried too far the accelerator coefficient will fall and the self-sustained growth will be interrupted.

To keep interest rates at a given level, the central bank must be willing to supply reserves to commercial banks, in response to commercial banks' demands, without limit at a fixed rediscount rate. Therefore the rediscount rate seems the appropriate tool of central bank policy.

Nevertheless if the money supply can increase only by business borrowing from banks, a ratio of debt to equities in business balance sheets can result which will lead to a decline in induced investment. Government deficits financed by borrowing from banks result in an increase in the money supply without any corresponding increase in business debt. If interest rates are such that velocity is greater than one, debts and equities to households will be substituted for debts to banks in the business firms' balance sheets. This is more conducive to steady growth than the situation in which all of the increase in the money supply required for steady growth is created in exchange for business debt. Therefore government deficit financing, even during a period of sustained growth and secularly rising prices, may be desirable in order to maintain the conditions for further growth.

WAGES AND INTEREST: A MODERN DISSECTION OF MARXIAN ECONOMIC MODELS

By PAUL A. SAMUELSON*

Modern economic analysis can throw light on the ancient problems of Ricardo and Marx. Neither of these gave a logically complete description of factor and goods pricing in the simplest case where land is free and where labor and intermediate capital goods applied today produce output after one period of time according to a constant-returns-to-scale production function. I propose to analyze such a simple economy, and then compare it with their formulations.

Just as the utilitarian Bentham was called "Paley without hell-fire," Marx can be classified by the modern theorist as "Ricardo without diminishing returns." The present treatment is part of a longer study of Ricardo-like systems. It makes no attempt to do justice to the many noneconomic and imperfect-competition aspects of Marx's thought, but takes seriously his belief that he was baring the inner workings of competitive capitalism.

Technological Assumptions. Assume two industries. Industry I produces homogeneous physical machines or raw materials called K (for physical capital). Industry II produces homogeneous consumption goods called Y. Production in both industries requires homogeneous labor $L_1 + L_2 = L$ and physical capital $K_1 + K_2 = K$ today, with output appearing one period later. Or

$$(1)\qquad \begin{aligned} K^{t+1} &= F(L_1^t, K_1^t) \qquad & L_1^t + L_2^t &\leqq L^t \\ Y^{t+1} &= f(L_2^t, K_2^t) \qquad & K_1^t + K_2^t &\leqq K^t, \end{aligned}$$

where the inequalities reflect the fact that one input may be redundant in supply.

Marx is supposed to have thought the production functions F and f in (1) to be of the fixed-coefficient type rather than of the smooth J. B. Clark type. So in this case we can[1] replace the functions of (1)

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[1] For this and other facts about linear programming and modern economic theory, see R. Dorfman, R. M. Solow, and P. A. Samuelson, *Linear Programming and Economic Analysis* (New York, 1957), particularly Ch. 11. It is shown there that the functions F and f can be written in the form:

$$\text{Minimum of } (L_i^t/a_i,\ K_i^t/b_i).$$

by the logically equivalent relations:

$$L_1^t \leqq a_1 K^{t+1} \qquad K_1^t \leqq b_1 K^{t+1}$$

$$L_2^t \leqq a_2 Y^{t+1} \qquad K_2^t \leqq b_2 Y^{t+1},$$

where $(a_1, b_1; a_2, b_2)$ are the positive technical production coefficients characterizing the fixed-proportion constant-returns-to-scale production functions.

The system's production possibilities can be summarized by

$$\begin{aligned} a_1 K^{t+1} + a_2 Y^{t+1} &\leqq L^t \\ b_1 K^{t+1} + b_2 Y^{t+1} &\leqq K^t. \end{aligned} \tag{2}$$

These relations are portrayed in Figures 1a and 1b. In Figure 1a, the straight lines correspond to the two equations of (2) with inputs L^t and K^t given. The corner A of the production-possibility locus will move northwest or southeast when one of the inputs is increased. Figure 1b shows the equations of (2), but with outputs K^{t+1} and Y^{t+1} specified: if an output rises, the corner A' of society's input-requirement locus $RA'S$ will move northeast.

The relative prices of outputs K^{t+1} and Y^{t+1}, $(p_2/p_1)^{t+1}$, must equal the absolute slope of the NAM locus at the production point actually observed. The relative prices of inputs L^t and K^t, $(w/p_1)^t$, where w is the wage of labor, can be any nonnegative number because the corner A' in Figure 1b can have a straight line of any slope tangent to it.

I. *Stationary Conditions*

Simple Reproduction. Under stationary conditions, or slowly chang-

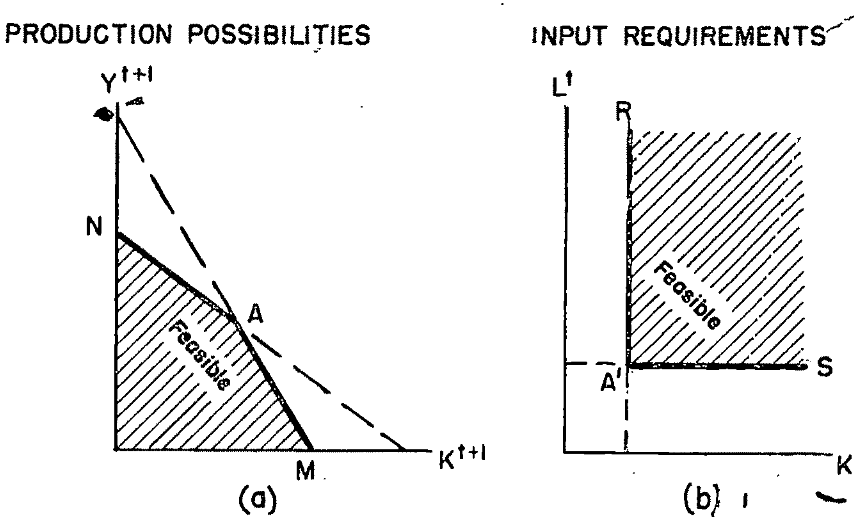

FIGURE 1. *NAM* shows goods producible with given inputs. *RA'S* shows inputs needed to produce specified outputs.

ing conditions, the capital stock K^t will accommodate itself to the supply of labor L^t, which is assumed to be fixed, so that we shall be at a corner A rather than at a point on NA or AM where one of the inputs would be redundant and therefore free. Hence, p_1, w, and p_2 will all be strictly positive. These prices, or their ratios, need not be constant through time but may be slowly changing—probably in a rather predictable way.

The model of "simple reproduction," in which all variables repeat themselves over time, is the natural starting place for an exact analysis. In this case we replace (2) by:

$$L^t = L^{t+1} = \cdots = L$$
$$K^t = K^{t+1} = \cdots = K$$
$$Y^t = Y^{t+1} = \cdots = Y$$

$$\begin{aligned} a_1K + a_2Y &= L \\ b_1K + b_2Y &= K; \end{aligned} \qquad (3)$$

or solving, by:

$$\begin{aligned} Y &= \frac{1 - b_1}{a_2(1 - b_1) + a_1b_2} L \\ K &= \frac{b_2}{a_2(1 - b_1) + a_1b_2} L \end{aligned} \qquad (4)$$

where labor supply L^t is taken as given at the L level. Being the only factor nonaugmentable in the long run, labor plays a pivotal role: all other magnitudes are proportional to it. The national product NP can be expressed in labor units simply as L; in consumption-good units NP is given by Y in the first equation of (4). Production of K goes into gross product; but K being an intermediate good needed to produce final consumption goods, it is not included in stationary NP.[2]

Prices, Wages, Interest. Though prices and wages are constant under repetitive stationary conditions, this does not mean that production is timeless or that intermediate products just now produced by labor and machines will exchange one for one against themselves when

[2] Ricardo made quite different assumptions about L. He assumed a Malthus-like subsistence wage level at which any number of workers would be produced and reproduced. Such subsistence wages he treated as intermediate product—like hay being fed to horses or coal to furnaces; hence Ricardo's net product would be mine minus wages. Marx assumed actual L used to be less than available L because of the existence of a "reserve army of the unemployed." He would interpret L in (4) then as actual L and would have to add this magnitude as a further unknown variable of the system. A new equation is then needed. The Marxian literature relates the size of the reserve army to labor-saving innovations, depressions, and migration but does not appear to contain a determinate quantitative equation to explain why it is as large as it is, why it is not larger than it is.

"ripened" one period from now—or one for one against finished goods produced today from last period's inputs. The fundamental factor relating unripened product today to ripened product one period from now is the market interest rate r (or what Ricardo and Marx would call the rate of profit, a pure percentage per period).

If the interest rate were $r = .05$ per period, then 100 finished units of Y (or of K) would today trade in the competitive market for 105 unfinished units of Y (or of K) just produced by current labor and capital goods. Free competition among producers, investors, owners of labor, and owners of capital goods will insure the following unit cost-of-production equations:

$$(5)\qquad \begin{aligned} p_1 &= (wa_1 + p_1b_1)(1 + r) \\ p_2 &= (wa_2 + p_1b_2)(1 + r). \end{aligned}$$

The first of these equations is directly solvable for p_1/w; and substituting the result into the second, we get the following explicit solution to (5) in terms of $(a_1, b_1; a_2, b_2; r)$:

$$(6)\qquad \begin{aligned} \frac{p_1}{w} &= \frac{a_1(1 + r)}{1 - b_1(1 + r)} \\ \frac{p_2}{w} &= \frac{a_2(1 + r)[1 - b_1(1 + r)] + a_1(1 + r)b_2(1 + r)}{1 - b_1(1 + r)}. \end{aligned}$$

The reciprocal of the last of these is the real wage expressed in terms of consumption goods. If interest were zero, this expression would equal the full productivity of labor in producing consumption goods, as given in the first equation of (4). But of course (4) refers only to steady states of output and input, paying no attention to the time lag between inputs and outputs. Only under special, and unrealistic, market assumptions can the competitive supply and demand relations be expected to ignore these timing relations: if supply and demand among investors and consumers yields a positive r, then workers will receive their "discounted" productivity. This means many things to many writers: exploitation to some, to others merely that workers (and machine-owners) receive their full *undiscounted* productivities in terms of the intermediate product that they *now* produce. Because of the workers' supply and demand for ripe and unripe products, and the corresponding supply and demand of those who own consumption or capital goods, the market rate of interest r is what it is. And being what it is, costs and prices and incomes are what they are.

Note too that the price ratio between any two goods, such as $p_2/w \div p_1/w$ in (6), or between either of these and any third good, will *not* be proportional to their embodied labor contents as given in the first equation of (4) and the corresponding equation derivable for

K in terms of L_1 alone.[3] Exchange values would precisely be given by such labor contents if interest or profit were zero. (Remember we have also conveniently banished all land rents from existence.) This mathematical fact will not be of comfort to one looking for a labor theory of value as a base point for a theory of labor exploitation; the proportionality of market price to labor content applies validly only when surplus value is zero and not worth talking about!

When interest is positive, a change in its magnitude will change all relative prices, a hard fact that Ricardo never could square with his desire to find an absolute measure of value based upon labor. And even had Marx lived to write a fourth or fortieth volume of *Capital,* he could not have altered this arithmetic obstacle to the relevance of his labor theory of value.

The Tableau Économique. For each stationary state based on L and r, we can combine the prices of (6) and the quantities of (4) to get the Quesnay-Marx-Leontief money-flow matrix. Of course, we must reverse the Marxian emphasis, beginning with market exchange values rather than labor values because that is what the market that determines people's incomes and goods' prices begins (and ends!) with. We get:

$$\begin{aligned} p_1K &= (wL_1 + p_1K_1)(1 + r) \\ p_2Y &= (wL_2 + p_1K_2)(1 + r). \end{aligned} \tag{7}$$

Write p_1K_1 as the Marxian "constant capital" C_1, wL_1 as "variable capital" V_1, and the difference between Industry-I receipts and the sum of these as "surplus value" S_1. Define C_2, V_2, S_2 for the second industry likewise. Then by definition (7) can be rewritten:

$$\begin{aligned} p_1K &= C_1 + V_1 + S_1 \\ p_2Y &= C_2 + V_2 + S_2. \end{aligned} \tag{8}$$

Such a relation would be valid even if positive accumulation were taking place, with $\Delta K = K^{t+1} - K^t > O$, and (7)'s $K = K_1 + K_2 + \Delta K$. If simple reproduction is assumed, with $K = K_1 + K_2$, then it is easy to derive the Marxian condition for simple reproduction.[4]

$$C_2 = V_1 + S_1 \tag{9}$$

However, the supposition made in *Capital,* Vol. I, of equal rates of surplus value in different industries, $S_1/V_1 = S_2/V_2$, is seen to be gen-

[3] If we write $\Delta K = K^{t+1} - K^t$ as the net production of physical capital, over and above what is used up as intermediate product in production ("depreciation"), then the steady-state production-possibility equation of final goods producible for each L may be shown to be given by:

$$a_1(1 - b_1)^{-1}\Delta K + [a_2 + a_1(1 + b_1)^{-1}b_2]Y = L.$$

[4] P. M. Sweezy, *The Theory of Capitalist Development* (New York, 1942), p. 77. This seems by all odds the best book on Marxian economics.

erally untrue. By (6)-(8), we find:

$$
(10)\quad
\begin{aligned}
\frac{S_1}{V_1} &= \frac{r(wa_1 + p_1b_1)}{wa_1} = r + r\frac{p_1}{w}\frac{b_1}{a_1} = \frac{r}{1 - b_1(1+r)} \\
\frac{S_2}{V_2} &= \frac{r(wa_2 + p_1b_2)}{wa_2} = r + r\frac{p_1}{w}\frac{b_2}{a_2} = \frac{S_1}{V_1} + r\frac{p_1}{w}\left(\frac{b_2}{a_2} - \frac{b_1}{a_1}\right).
\end{aligned}
$$

It would be a fortuitous selection of $(a_1, b_1;\ a_2, b_2)$—namely that for which $b_1/a_1 = b_2/a_2$—that would make these equal when both are not zero. However, the situation is a little better than Marx's critics have realized: for if the "organic composition of capital" happened to be the same for different industries at one interest rate, then it would have to be the same for all values of r.

Table I shows the simple reproduction model in the Leontief tableau form of input-output money flows. Each industry is listed in rows and in columns. Thus, the column of Industry I gives the dollar production

TABLE I.—SIMPLE REPRODUCTION, LEONTIEF-STYLE

Industries		I	II	Final Products	Gross Product Totals
I		p_1K_1	p_1K_2	0	Σ
II		0	0	p_2Y^*	Σ^*
Value Added	Wages	wL_1	wL_2		Σ } Σ^*
	Interest	$r(wL_1+p_1K_1)$	$r(wL_2+p_1K_2)$		Σ
Gross Costs		Σ	Σ^*	Σ^*	$\Sigma\Sigma$

costs it pays out. The row indicates where Industry I sells its products. Above and to the left of the broken lines are the intermediate-goods flows; then on the right comes the value of final output, and below come the value-added cost items (excluding, of course, all depreciation). The starred quantities represent national product, as final commodity flow or equivalent factor costs. The sums of rows or columns are indicated by Σ, and the $\Sigma\Sigma$ checks the identity of all the table items to the gross sum of column sums and to the gross sum of row sums. As a condition of stationariness, $\Delta K = 0$ in row I's third column: hence (9)'s identity between p_1K_2 and the value-added items of column I.

To be stressed is the fact that our table is limited by more than the tautological accounting identities: having committed ourselves to equations (1)-(6), we must make each entry in the table directly proportional to total labor L, with a proportionality coefficient that is an

easily determined function of $(a_1, b_1; a_2, b_2; r)$ and nothing else. I leave the working out of such coefficients to the reader, since they are important only for Marx's special two-industry circular model. Later we shall see how the coefficients vary for each percentage rate of growth of the system.

A Digression on the "Transformation" Problem. Marx seems never to have quite mastered the purely technological implications of his simplest models. It is idle to speculate whether his Volume II analysis of circular flows might not have been more fruitful if he had not misled himself by Volume I's attempted labor theory. After all, we don't expect in 1860 to find 1960 models. But later scholars surely would have made progress faster in this field if they had subjected the labor theory to careful analysis rather than spent so much time in what must seem to a critic as sterile apologetics.

One honest attempt to analyze the relations between exchange values and labor values beyond the unsatisfactory state left by the posthumous Volume III is associated with the names of Bortkiewicz, Sweezy, and Winternitz.[5] Yet the present *exact* analysis of this model suggests that this so-called "transformation problem" is rather pointless. Equations (6)-(7) determine all market magnitudes in terms of $(a_1, b_1; a_2, b_2; r; L)$. Using the definitions implicit in (8), we can then evaluate all the Marxian expressions as functions of these same variables. Logically this transformation goes from exchange values to Marxian-defined values—not vice versa! This is because exchange values are solidly based on equations (5)-(6), as Ricardo, Smith, and all modern economists would agree. There is no similar solid ground to be found in the Marxian labor theory of value; a model based on equal rates of surplus value is like a made-up nursery tale, of no particular relevance to the ascertainable facts of the simple competitive model (nor to the facts, for that matter, of the Chamberlin monopolistic competition models or the models of developing and oscillating capitalism).

Many Marxians have thought it a virtue of the labor theory of value that it "explains its deviations" from the market-price theory. If so it shares this virtue with every theory, however nonsensical: for

[5] See Sweezy, *op. cit.*, Ch. 7 for discussion and references. Also, L. von Bortkiewicz, "On the Correction of Marx's Fundamental Theoretical Construction in the Third Volume of *Capital*," transl. by Sweezy from the July 1907 *Jahrbücher für Nationalökonomie und Statistik* and given as an appendix in Sweezy's English edition of Böhm-Bawerk's critique of Marx and Hilferding's rejoinder: *Karl Marx and the Close of His System* (New York, 1949). J. Winternitz, "Value and Prices: A Solution of the so-called Transformation Problem," *Econ. Jour.*, June 1948, LVIII, 276-80. R. L. Meek, *Studies in the Labour Theory of Value* (London, 1956), pp. 189-200, discusses this problem and gives reference to later *Econ. Jour.* writings.

truth always equals "error plus a deviation"; and while I should prefer to say that Euclid's geometry explains the deviations between it and my daughter's geometry rather than vice versa, I would not go to the guillotine over such a semantic issue. A quite different defence of the Volume I detour is the historical argument that prices *once* were in accord with Volume I's labor theory, but just as Volume III evolved from Volume I so did the capitalistic system outgrow the simple labor theory: ontogeny repeating phylogeny may be accurate biology, but a respect for the facts of history and anthropology stands in the way of this hypothesis. There is finally Marx's own view that the labor theory of Volume I is needed to "determine" or "explain" the *aggregate* of surplus value, with the bourgeois theories of Volume III having the mundane task of settling the details of how the determined aggregate is to be *allocated* among the different industries. Actually, in the competitive Marxian model defined by equations (1) and the following, there can be no prior determination of the aggregate: the whole is the sum of its (admittedly nonindependent) parts and all the pricing relations are simultaneously determined.[6]

I have not the space to deal with the defensive argument that Volume I's labor theory is a (needed or unneeded?) simplifying first approximation. Modern science and economics abound with simplifying first approximations, but one readily admits their inferiority to second approximations and drops them when challenged. Moreover, to my mind, the only legitimate first approximation would be that of Smith

[6] Maurice Dobb, *On Economic Theory and Socialism* (London, 1955), Chapter 17, deals with the transformation problem. Dobb, as does Sweezy, seems to feel that Bortkiewicz came to criticize Marx but in effect ended up justifying him by showing that labor's wage was determined after a "deduction" and by arguing as follows: "If . . . the rate of profit in no way depends on the condition of production of those goods which do not enter into real wages, then the origin of profit must clearly be sought in the wage-relationships and not in the ability of capital to increase production." (L. von Bortkiewicz, "Value and Price in the Marxian System," English transl. in *International Economic Papers No. 2* [1952], p. 33). I do not see that the Bortkiewicz "deduction" or "withholding" theory of wages differs essentially from the conventional "discounted" productivity theories here analyzed and subscribed to by Taussig, Wicksell, Böhm-Bawerk, and non-Austrians. Adding a nonwage-good sector with its new (a,b) coefficients and adhering to horizontal labor-supply conditions which fix the real wage, we may find it true that all three industries can come into stationary equilibrium and with r determinable from (5) or (11) quite independently of the new (a,b) coefficients. But how does this make anyone prefer Volume I to Volume III or to any modern bourgeois theory?

Without going into the social relations of the past or future, any economist can see these implications of competitive market prices. (He can also see that the (b_1,b_2) coefficients reflecting the productivity of capital *do* affect r; and he can envisage a case where Industry III alone, by virtue of having $a_3 = 0$ and $b_3 < 1$ will determine its own-rate of profit by itself, and he will realize that if this new r differs from that of (11) what must give is not bourgeois economic theory or the capitalistic institutional economy but rather the assumption of stationary relative prices!)

and Ricardo in which the labor theory is first introduced with zero surplus value or profits (as in Ricardian comparative advantage examples) but is then to be dropped as unrealistic. Volume I's first approximation of equal positive rates of surplus value, S_i/V_i, is not a simplifying assumption but rather—to the extent it contradicts equal profits rates $S_i/(V_i + C_i)$—a complicating detour. Marxolaters, to use Shaw's term, should heed the basic economic precept valid in all societies: Cut your losses!

II. *Incompatibility of Falling Profit and Falling Real Wage*

Falling Real Wage or Falling Rate of Profit? We now have the equipment to answer an unresolved problem of the Marxian literature. Is there a law of the declining rate of profit as time goes on? Ricardo and Sir Edward West in 1815 showed that the answer is, Definitely yes, if you assume Malthusian reproduction of labor matches the capital accumulation that is applied to scarce land. The law of diminishing returns applied to land then guarantees that profit, or interest, should fall.

Marx, having in most of his work ruled out such rising rent considerations, explicitly rejects this explanation of falling profits. Moreover, Marx was like Malthus and older economists in not bothering to distinguish between technological changes and changes within a given production function. This does not mean that for him a postulated secular econometric law meant that literally what it prophesied would indeed happen; for, like Malthus and others, he often spoke of "tendencies," and in such a way that we hardly know how to decide when he was wrong—and hence when he was right!

From a tautology relating the profit rate r to society's rate of surplus value $\Sigma S/\Sigma V$ and its organic composition of capital $\Sigma C/\Sigma V$, Marx deduced the tautology that higher values of the latter, the former being held constant, would necessarily mean that r falls. Sweezy, Joan Robinson, and most analysts of Marx have rightly, I think, criticized this arbitrary *ceteris paribus* type of argument. The rate of surplus value is a purely derived concept about which little can be said in advance until we already know what is happening to the (a, b) technological coefficients and the supply-demand relations for labor and interest loans. Instead therefore we must tackle directly the question of what accumulation will tend to do to r, basing ourselves on the actual behavior equations of competitive capitalism.

First though, we should note a contradiction in Marx's thinking that analysts have pointed out. Along with the "law of the falling rate of profit," Marxian economists often speak of the "law of the falling (or constant) real wage of labor." Some Marxians have even thought

that the important fruit of *Capital's* peculiar definitions has been this law of the "immiseration" of the working classes, with the rich getting richer the poor poorer, and with nothing to be done about it until capitalism becomes so senile and cycle-ridden as to lead inevitably to a revolutionary transformation into socialism or communism. The facts of economic history have, of course, not dealt kindly with this law. And Marx himself did not adhere to it at all times. But he perhaps didn't fully realize the inconsistency of his two inevitable laws. As Joan Robinson points out: "Marx can only demonstrate a falling tendency in profits by abandoning his argument that real wages tend to be constant."[7] Our model is well-designed to show this.

Specifically, with specified (a, b) coefficients if attempts to accumulate did succeed in bringing profit r down to a lower plateau, the real wage would have to be higher—and by a quantitative amount to be predicted from our second formula of (6), namely

$$\frac{w}{p_2} = \frac{1 - b_1(1+r)}{a_2(1+r)[1 - b_1(1+r)] + a_1(1+r)b_2(1+r)}. \tag{11}$$

This rational function grows as the interest or profit rate falls, reaching its maximum when r reaches its zero level.

A Theorem about Technological Change under Perfect Competition. This wage-profit relation is derived, not from the orthodox model involving smooth marginal productivities, but from the simplest fixed-coefficients model that Marx seems often to have had in mind.[8] It does rest though on fixed technology as given by the (a, b) coefficients. Since Marx admits technological change into his system, doesn't *my*

[7] Joan Robinson, *An Essay on Marxian Economics* (London, 1942), p. 42. Also, Sweezy, *op. cit.*, Ch. 6.

[8] J. Robinson, *op. cit.*, p. 43 demonstrates the orthodox case, making implicit use of a smooth two-factor homogeneous production function. Her next page's numerical example, suggesting that with a fixed real wage *r might* fall, is inconsistent with such a model, no matter how "very sharply" the marginal productivity of capital is assumed to fall; forgotten is the fact that when increased capital to labor leaves the real wage constant, decreased labor to capital *must* leave the profit rate constant too; actually, for all changes within a smooth or unsmooth homogeneous production function, Δ(real wage) equals $-\lambda\Delta$(profit rate), where λ is an intermediate positive capital/labor ratio.

Recently William Fellner, "Marxian Hypotheses and Observable Trends under Capitalism: A 'Modernized' Interpretation," *Econ. Jour.*, Mar. 1957, LXVII, 16-25, argues that a two-factor, homogeneous production function, zero-monopoly world can have its real-wage marginal productivity and its profit marginal productivity simultaneously fall—provided a sufficiently labor-saving invention has intervened. Fellner's conclusion is inconsistent with my theorem: competition would keep the invention he envisages from ever becoming exclusively dominant. The rest of Fellner's excellent paper is quite unaffected by his pp. 20-21 discussion of this point, which in any case no longer represents his opinion on the subject. Since writing this paper, I note H. D. Dickinson, "The Falling Rate of Profit in Marxian Economics," *Rev. Econ. Stud.*, Feb. 1957, XXIV, 120-31, deals with a similar topic, attempting to use the Marxian *C, V, S,* categories. The sharp contrast with the present treatment is worthy of note.

argument that falling r with given (a, b) coefficients implies rising real wage w/p_2 become irrelevant? In the competitive model, I believe not completely.

For technological change is itself subject to *some* laws. A technical improvement must be an improvement or it will not be introduced in a perfect-competition market economy: Marx cannot repeal the valid part of Adam Smith's law of the Invisible Hand, for its validity depends only on the existence of numerous avaricious competitors. To illustrate, imagine an old set of coefficients $(a_1, b_1; a_2, b_2; r)$ and a new possible set $(a_1', b_1'; a_2', b_2'; r')$. Then if $r' < r$ and if the new technology will actually win its way in a competitive market over the old, I assert the theorem that *the new steady-state real wage* $(w/p_2)'$ *must be greater than the old real wage.*[9]

This is straightforwardly provable by the mathematics of linear programming. It will become intuitively clear if one considers the special Ricardian case where $b_1 = 0$ and no circular complications can arise from the fact that it takes machines (K_1) to make machines (K). Remember that in a perfectly competitive market it really doesn't matter who hires whom: so have labor hire "capital," paying the new market interest rate $r' < r$; then labor could always use the old technology and paying less than r get better than the old real wage. If labor does not do this, it must be because it can now do even better than better.[10]

If my result or my argument seems paradoxical, remember that perfect competition—like Christianity—will be found to be very paradoxical if ever it is universally tried. And remember too that Marx has made the unrealistic assumption that everything except labor is reproducible in the long run. If he had abandoned his labor-theory-of-value concepts and from the beginning built on the patent fact that natural resources too are productive (in the unemotive sense that if the U.S.A. or U.S.S.R. didn't have them, its product would be less), then the possibility of having profit and wages both fall would have to

[9] Rewriting (11) as $w/p_2 = \Phi(r;a,b)$, and now letting (a,b) be variable as a result of technological change, the competitive Invisible Hand can be proved to select (a,b) so that $w/p_2 = \Phi(r) =$ maximum of $\Phi(r;a,b)$ with respect to (a,b). Similarly, $r = \Phi^{-1}(w/p_2) =$ maximum of $\Phi^{-1}(w/p_2;a,b)$ with respect to (a,b). Always $\Phi'(r) < 0$. I believe this to be a new theorem. Of course, it is a prosaic mathematical fact not a Dr. Pangloss teleology.

[10] The argument holds even if capitalists do all the hiring, provided only that workers go where they get highest w and competing capitalists do what gives highest profits. If $b_1 > 0$, the argument needs some amplification because workers have to hire some of the old-type K_1 to carry through the old-type activities and for quite a while the rents of the K's might be adverse to labor; also we could not be sure of being able to settle down to a steady state in two periods when $b_1 > 0$. The stated theorem remains valid though. (Note that with $b_1 > 0$, there *must* have been other ways of producing or getting K, else the system could never have gotten started and could never recreate any K if it were all bombed out—or if, like passenger pigeons or dodo birds, K once became extinct.)

be admitted. He would also have been in a better position to explain why some people are very rich indeed and why some countries are more prosperous than others.

Causality and History. Faced with two contradictory dogmas, what are we to do? Decide that the capitalistic system is doomed to contradiction, and that when the irresistible force meets the immovable object there will ensue an inconceivable disturbance—with communism peeking up through the revolution's ruins? This is the "pathetic fallacy" —in which the observer imputes to Nature his mental states—with a vengeance.

Instead, of course, we jettison one (at least!) of the dogmas. Which one? I nominate the law of the declining (or constant) real wage for the junk pile, and note with interest that modern Marxians increasingly turn to that part of the sacred writings more consistent with last century's tremendous rise in workers' real wage rates.[11]

It would be unsafe to predict an actual secular decline in interest or profit rates in that most economists—notably Schumpeter and Irving Fisher—have emphasized how technological change may raise sagging interest rates, just as plucking a violin string restores its dissipating energies. Moreover, interest rates have historically oscillated in such a way as to lead many economists to the view that there is a fundamental law of constancy of the interest rate. (Taussig, *e.g.*, tried to frame a theory of a horizontal savings schedule to explain this alleged constancy.)

None the less it is of some import to know what would be the effect of attempts to accumulate capital at a rate greater than labor supply increases, *on the assumption of unchanged technology.* For such an inquiry can throw light on the tendencies upon which technological changes of a labor-saving, capital-saving, or neutral character have to be superimposed. Within the framework of my simple two-sector fixed-coefficients model, the resulting analysis will be seen to be at least a little like the despised wage-fund doctrines of Smith, McCulloch, and the Mills.

III. *Steady Growth*

The Expanded-Reproduction Model. Apparently Marx did not have the time to perfect his "expanded reproduction" model in which investment and growth take place. Modern techniques make such analysis a simple task. I retain the fixed-proportions assumption and take up the natural case where, instead of being geared to a stationary level, the economic system is geared to steady growth. This necessarily

[11] See for example, discussion of this topic in *Econ. Rev.* (Tokyo), Jan. 1957, VIII, particularly 21-25.

means steady geometric or exponential growth at uniform percentage rates: no other time-path is possible if many variables and their rates of change are to remain in constant proportions. Such a geometric progression has the further property that relative contemporaneous prices and relative intertemporal prices can be constant along it.

Our production conditions (1) and (2) remain applicable. So do our cost-of-production conditions (5)-(6). But now our simple-reproduction equations (3)-(4) must be replaced by their equivalent relations corresponding to each percentage rate of growth m per period. Now:

$$
\begin{aligned}
K^{t+1} &= (1+m)K^t = \cdots = (1+m)^t K^o \\
L^{t+1} &= (1+m)L^t = \cdots = (1+m)^t L^o \\
a_1(1+m)K^t + a_2 Y^{t+1} &= L^t \\
b_1(1+m)K^t + b_2 Y^{t+1} &= K^t,
\end{aligned} \tag{12}
$$

where I have substituted for K^{t+1} its indicated value in terms of K^t and have omitted all inequalities by virtue of the assumption that the system is geared to its rate of growth with no excess capacities of men or machines. Just as we solved the static (3) for (4), we can solve the last two equations of (12) explicitly to get

$$
\begin{aligned}
Y^{t+1} &= \frac{1 - b_1(1+m)}{a_2[1 - b_1(1+m)] + a_1 b_2(1+m)} \\
K^t &= \frac{b_2}{a_2[1 - b_1(1+m)] + a_1 b_2(1+m)}.
\end{aligned} \tag{13}
$$

The first of these coefficients has a slight similarity to the expression for the real wage in (11) or (6). In (11) and (6) the positive interest factor r acted to blow up, so to speak, every input requirement a_i or b_i into $a_i(1+r)$ and $b_i(1+r)$. Here the positive growth rate m acts to blow up b_1 and a_1 into $b_1(1+m)$ and $a_1(1+m)$, but b_2 and a_2 are quite unaffected.[12]

Table II presents the moving equilibrium. Except for $p_1\Delta K$, which is equal to $mp_1(K_1 + K_2)$, it looks like the earlier Table I. National product is now given by fewer starred sums Σ^*, and this must equal the sum of all the value-added items. No longer does the condition for simple reproduction, $p_1K_2 = wL_1 + r(wL_1 + p_1K_1)$ as in (9), hold. Also the precise dollar magnitudes are now definitely weighted toward more importance to Industry I, since we now spend more of our available final incomes on capital growth: the exact quantitative magni-

[12] In the closed von Neumann model of dynamic equilibrium, characterized by constant-returns-to-scale and everything plowed back into the system, m and r turn out to be identical. This is not such a system and the possible relations are $m \gtreqless r$.

TABLE II.—STEADY-GROWTH EXPANDED-REPRODUCTION, LEONTIEF-STYLE

Industries		I	II	Final Products	Gross Product Totals
I		p_1K_1	p_1K_2	$p_1\Delta K$	Σ
II		0	0	p_2Y	Σ
Value Added	Wages	wL_1	wL_2		Σ } Σ^*
	Interest	$r(wL_1+p_1K_1)$	$r(wL_2+p_1K_2)$		Σ
Gross Costs		Σ	Σ	Σ^*	$\Sigma\Sigma$

tudes are given by functions of the $(a_1, b_1; a_2, b_2; r; m)$ coefficients and are easily computed from equations (6) and (13).

In the next period our tableau would look like that of this period, but with all magnitudes blown up by the common factor $(1 + m)$; and so forth with each succeeding period. Hence, such a steady-growth progression *could* go on forever if only the same behavior rules continue to prevail. (The only restriction on the possible rate of growth is that $1 - b_1(1 + m) > 0$ or $0 \leqq m < (1 - b_1)/b_1$ so that all indicated ratios shall exist and keep all our variables positive. A similar restriction $1 - b_1(1 + r) > 0$ had to hold for r. Otherwise production of capital goods K could never have paid.)

I have said nothing about the saving habits of wage or interest earners that would give rise to the analyzed growth rate m. Certainly if each group saved a constant proportion of its income at all times, say σ_w for workers and σ_r for interest receivers, we could solve for the only "warranted rate of growth" m that is compatible with these properties. (Of course, to assume that L^t is always available at the resulting geometric rate is tantamount to postulating a "natural rate of growth" equal to whatever warranted rate results.)[13]

The solution for m in terms of σ_w and σ_r is more complicated than one might at first think. Obviously, the distribution of income depends upon the interest rate r, postulated to go along with the given $(a_1, b_1; a_2, b_2)$ technical coefficients. Call the fractions of income going to wages and interest k_w and $k_r = 1 - k_w$. Then the community's average propensity to save must be

$$\sigma = k_w\sigma_w + k_r\sigma_r = k_w(\sigma_w - \sigma_r) + \sigma_r;$$

and we see that this will be the higher the higher is the income of the relatively more thrifty interest receivers.

What we may not realize is that the distribution of income coeffi-

[13] These terminologies will be recognized as those of the modern Harrod-Domar growth models.

cients, besides being functions of the interest rate r, are also functions of the unknown m growth rate as well; indeed the ratio of total capital asset value to income, the so-called "accelerator" coefficient β, which is needed along with σ to define the warranted rate of growth, is itself a function of m (as well as of r). So the equation defining the warranted rate of growth:

$$m = \frac{\sigma}{\beta} \qquad \text{or } \beta m - \sigma = 0$$

must, even for given (a, b) coefficients, be written in the implicit-equation form:

$$(14) \qquad m = \frac{\sigma(r; m)}{\beta(r; m)}, \qquad \text{or } \beta(r, m)m - \sigma(r, m) = 0.$$

Why do the accelerator and the distribution-of-income coefficients depend on m as well as on r? First, because the relative share of wages will differ generally in Industries I and II, and each different growth rate gives a different relative importance to the capital-goods and consumption industries. Our equations permit us to compute the exact effects for each $(a_1, b_1;\ a_2, b_2;\ r;\ m)$ coefficients. Second, and related to the above, each different r will change the dollar (or consumption-good or labor-hour) total of asset value to which the yield r is applied. The equation:

$$\begin{aligned} \text{Total interest return} &= r \text{ (total asset value)} \\ (15) \qquad\qquad &= r(wL_1 + wL_2 + p_1K_1 + p_1K_2) \\ &= r[A(a_1, b_1;\ a_2, b_2;\ r;\ m)wL], \end{aligned}$$

where A is a function determinable from our earlier equations and where the bracketed expression represents total asset value.

Our whole problem then has a determinate solution quite free of any of the dilemmas of "capital metaphysics." All is grounded in hard technological fact and hard competitive-market fact: there are circular relations between interest and asset value, but they are virtuous circles not vicious ones.[14]

IV. *Changing Factor Proportions and Prices*

The Law of the Rising Rate of Profit. So long as labor and the sys-

[14] The case where profit receivers have $\sigma_r = 1$ and workers have $\sigma_w = 0$, however econometrically unrealistic, is a special case of the above analysis. Were $\sigma_w > \sigma_r$, the logic of the system would be little changed. Of course, with $\sigma_w = \sigma_r$, the distribution of income would become irrelevant and the analysis slightly simplified. Also, in the singular case earlier mentioned, where $a_1/b_1 = a_2/b_2$ and labor-values are proportional to prices, k_w and k_r are independent of m and the analysis becomes even more simple; but to assume away differences in the organic composition of capital is to ignore one relevant factor in the distribution of income.

tem are geared to grow at the same rate, there is no need for profit or interest to change. But if labor grows at a faster percentage rate than does "capital," our equilibrium conditions become inconsistent. Something has to give. What?

One definite possibility is for labor to become redundant and—if it has no reservation price or real cost of staying fit to work—its wage will have to fall. Fall how far? Adhering to the extreme assumption of fixed-coefficient production functions as given in (1) and what follows, we recognize that the real wage becomes literally zero. Kill off one of the now superfluous man-hours and you have outputs unchanged: so the competitive market will impute a zero wage to all man-hours. Mathematically, the inequality will now hold in the first relation of (2); and since all subsequent equations were based on the equality in this relationship, all must now be replaced by new relations. *E.g.*, cost-of-production now requires:

$$\begin{aligned} p_1^{t+1} &= b_1 p_1^t(1 + r^t) + a_1 0 \\ p_2^{t+1} &= b_2 p_1^t(1 + r^t) + a_2 0; \end{aligned} \tag{16}$$

and if prices are to be constant through time with $p_i^{t+1} = p_i^t$, we must have

$$\begin{aligned} 1 + r &= \frac{1}{b_1} \\ \frac{p_2}{p_1} &= b_2(1 + r) = \frac{b_2}{b_1}\,. \end{aligned} \tag{17}$$

These show that the interest rate, which is now interpretable as the own-rate and net-reproductive-rate of machines, must, so long as any of them are being produced, be determinable by technology alone quite independently of all time preferences; and that the terms of trade between consumer goods and machines now depends only on technology, and more specifically only on machine requirements as given by the b's with the a requirements of free labor now being irrelevant.

We can now reckon the national product from the first equation of (12). The following must all hold:

$$\begin{aligned} b_1K^{t+1} + b_2Y^{t+1} &= K^t \\ b_1\Delta K + b_2Y^{t+1} &= (1 - b_1)K^t \\ \frac{b_1}{1 - b_1}\Delta K + \frac{b_2}{1 - b_1}\,Y^{t+1} &= 1 \cdot K^t \\ \frac{p_1}{p_2}\Delta K + 1 \cdot Y^{t+1} &= r\left(\frac{p_1}{p_2}\,K^t\right). \end{aligned} \tag{18}$$

The next-to-the-last of these shows the total value of final products

expressed in machine *numeraire* units. The last equation shows on the left side the total value of final products expressed in consumer-good *numeraire* units. The right side, which was derived by using the relations (17), shows that the national product is equal from the cost side to interest on value of machines alone. This is natural enough since wages are zero and must have a zero share of total income.[15]

In this case where capital goods have ceased growing as fast as labor, the rate of profit has risen to become all of the product. So bizarre a result came from the bizarre assumption of fixed coefficients. If there were many alternative techniques, a faster growth of labor than capital would imply rising interest or profit rates and falling real wages, but not a zero wage with profits getting all.[16]

Even in the extreme case of fixed-proportions technology, a zero wage is one possibility: indeed a quite likely one. But it is not the only possibility. As long as the organic compositions of the two industries differ, by shifting demand toward that industry with relatively high labor requirements—as measured by higher a_i/b_i—we could put off the evil day of labor redundancy and zero wage. There is no Invisible Hand, though, which inevitably leads the system to this demand shift: the reduction in the relative price of the labor-intensive good need not coax out much more physical demand for it. In any case, if labor really grows at a faster geometric rate than capital, labor must inevitably become more plentiful relative to capital than either industry could employ and must ultimately become free.

How Profits Fall. The case where capital grows more rapidly than labor is perhaps more true to Western life. In order to see what happens when people try to accumulate faster than the labor supply, consider the special instance where labor is completely stationary and yet savers would like to accumulate. This special case, where the natural rate of growth of the system is given by $m = 0$, does not differ in its qualitative features from any case where m is positive but less than the warranted percentage rate at which capitalists would like to have the system grow.

[15] If capitalists saved all, with $\sigma_r = 1$, and if they received all the income, with $k_r = 1$, then the system's actual rate of growth would be $m = r = (1 - b_1)^{-1}$, which would prevail so long as available labor grew even more rapidly and stayed freely available. It would involve a certain amount of implicit theorizing to argue that this actually would happen in a model in which laborer's-consumption was tied to subsistence and had already been included by convention in the b (rather than c) coefficients; but such a mode of arguing would not be logically wrong, however unrealistic these econometric assumptions might be regarded.

[16] The simplest neoclassical model is one where $\Gamma + (dK/dt) = Q(K,L)$, Q being a homogeneous function of the first degree with partial derivatives ("marginal productivities") Q_L and Q_K. The diminishing-returns condition $\partial^2 Q/\partial L^2 = Q_{LL} < 0$ implies that a rising trend in L/K entails a rising trend in $r = Q_K$ and a falling trend in $w = Q_L$.

The Marxian model with fixed coefficients presents some quite pathological features. For if the attempt to accumulate were to cause physical machines K to grow relative to fixed labor L, the machines would become redundant in supply and their rents would fall immediately to zero.[17] The most obvious case in which this would have to happen instantaneously is that in which the organic compositions of capital are equal: $b_1/a_1 = b_2/a_2 = b/a$. The instant K/L exceeded b/a, K would become free, with $(p_1/w)^t = 0 = (p_1/p_2)^t$. We should then have:

$$p_2^{t+1} = w^t a_2(1 + r^t). \tag{19}$$

No production of future K would take place unless it covered its production costs; so only so much would take place as could match the b/a machine-labor ratio. Industry I would therefore contract so as no longer to produce K^{t+1} in excess of La/b. Industry II would temporarily produce more consumption goods: whether these would end up consumed by workers or capitalists would depend on the interest rate and price configuration prevailing at the end of the next period.

A similar but slightly more complicated analysis would handle the case where $b_1/a_1 \neq b_2/a_2$. In every case should the attempt to save cause a disproportionate temporary growth in K, K would become free. This does not imply euthanasia of the capitalist class, not even temporarily. For as (19) shows, interest would still be received on "advances" to workers. Machines are only one type of capital asset. Goods in process are another.[18]

Had the attempt to save forced K rents to zero, it could only be the result of a miscalculation: competitive future prices could not have been correctly quoted in the market place. To be sure, competitive capitalists have no crystal ball picturing the exact future and mistakes have often been made. But once K had become free, it could never stay

[17] There is the possibility, mentioned in the last section, that shifts in product-demand-mix toward the industry using more of the excessively-supplied factor might absorb its extra supply—at least for a while. Thus the cheapening of the machine-intensive good might meet a sufficiently elastic demand for that good to keep both factors nonredundant. But note that this shift could not carry us back to the stationary-state simple-reproduction configuration of Table I with the same price ratios and interest rate prevailing and the same zero net investment prevailing, because our hypothesis is that people are no longer content to refrain from saving in that situation. And growth of K at ever so small an exponential rate faster than labor's growth rate would inevitably make it a free good in finite time.

In this pathological model labor might collusively wipe out all K rents by producing one redundant unit of K. But only temporarily. Production of K will subsequently contract. In this model, collusion of all owners of K could limit its supply and wipe out wages. However, if any one unit of K escaped from the cartel, it and collusive labor could eventually reproduce any needed K *outside* the cartel.

[18] Such intermediate goods are probably a better description of capital than the old view of capital as the historic, now gone, food that was advanced to workers. The latter double-counts if we add it to the former; by itself, the latter undercounts in that interest is also earned on outlays for factors other than labor.

free and continue to be produced. Curtailment of its production by Industry I would undoubtedly take place. One could even try to construct a cobweb-like business cycle theory of intermittent over- and underproduction of capital goods; certainly, though, a two-sector fixed-coefficients model has such special features as to make the result rather unrealistic.

What then is the equilibrium time-path that is consistent with stationary L and attempts to accumulate? The fixed-coefficient Marxian model makes all "real" accumulation quite impossible: there can be *no* technical "deepening of capital" in it. Does this mean that the profit rate r cannot fall? No. Why should it mean this? If I wish to save, for my old age or to enhance my power, why should I be led to desist from trying to do so by the consideration that the system is incapable of using new investment? Rather will I continue to try to save, to try to buy up existing assets.

Thus, suppose I earn income from K rents, or from interest return on goods in process, or from selling goods for more than I paid in wages and rent in producing them, or for that matter merely from my wages. Then instead of spending all this income on current consumption goods Y, I may *try* to hire labor or machines for next period's production, giving up so to speak my consumption allotment to owners of those factors.

Now what is it which guarantees that there will be owners of such factors willing to hire them out in the amount that investors wish to employ them? Of course, it is the competitive pricing mechanism that causes all markets to be cleared.[18a] Crudely, you can say that the interest rate r^t falls enough to eliminate any excess in the value of what people want to save and invest over the value of factors available to them; contrariwise, if the wish to save and invest is lagging, the present factor prices $p_1{}^t$ and w^t will be depressed relative to future goods' prices $p_1{}^{t+1}$ and $p_2{}^t$ and the competitive rate of interest (or of profit) will be bid up very high. It is crude to speak of the interest rate r^t as alone providing equilibration: actually it is the whole pattern of present and future prices $(p_1{}^t, p_2{}^t, w^t; p_1{}^{t+1}, p_2{}^{t+1}, w^{t+1})$.

In the special case where the urge to accumulate is modest and steady, the profit rate r^t could be steadily falling as a result of this process, but at so slow a rate as to permit relative prices $(p_1/w)^t$ and $(p_2/w)^t$ to remain practically constant over time.[19] Then our cost-of-

[18a] See later sections for some qualifying remarks concerning "effective demand."

[19] I make a point of considering a slow change in r^t because the actual interest change in each period will cause changes in (p_2/p_1) and (p_2/w) and create revaluations and money windfalls. With relative prices changing, we no longer have equality of "own-interest-rates" and (5)-(6) need obvious modifications. By assuming $(r^{t+1} - r^t)$ always very small, we make these revaluation-effects small and ignorable.

production equations (5)-(6) would still be valid but are to be written with a slowly falling r^t in them. The steady attempt to accumulate leads to no physical accumulation of K or anything else; rather it causes an upward valuation of existing input prices relative to output prices, which is the same thing as a reduction in the profit rate r^t. Some savers may now succeed in hiring additional inputs $(K_1^t, K_2^t, L_1^t, L_2^t)$ but, if they do, it is because other capitalists become content at the new interest rate and price pattern to hire less. If all capitalists are exactly alike, they merely bid up factor prices and bid down profit rates.

What has all this attempted accumulation done to real wages? With lower r^t in equations (5)-(6), and in particular in the last line of (6), we see that less is being "discounted" from labor's ("gross") productivity. Real wages have been rising. If, at the lower interest rate, net accumulation should now cease, the real wage going to the unchanged labor supply will not fall back to its previous level but will stay at the higher plateau forever.

Each capitalist in trying to save and increase his own profits ends up killing off the total of profits in favor of the workers. This extreme phenomenon results from the extreme assumption of fixed-coefficients with implied zero marginal-productivity to all further machines or changes in the roundaboutness of production. Yet something of what happens in this case will also hold in a more realistic case of multiple production techniques. As attempted saving lowers interest rates it lowers the discounting of real wages; but in the more neoclassical case, employers will not lose all that workers gain, the difference coming from the extra product producible from "deepening of capital" (*i.e.*, producible from the new complex of physical capital goods brought into existence by the pricing changes induced by the attempt to save).[20]

All this makes clear that the technical (a, b) coefficients and the competitive cost-of-production equations are insufficient to determine all our variables: we need further equations of supply and demand, as *e.g.* ordinal utility conditions showing how workers and interest receivers allocate their consumption expenditures among different goods. But even the latter consumption demand equations are not enough: the rate of interest r^t would still not be determined.[21] We need saving-investment propensities, and propensities to hold and add to earning assets to complete the system.

[20] See Figures 2b and 2c for elucidation of the many-techniques case.

[21] If labor is assumed always to be on a horizontal long-run supply schedule at a "subsistence real wage w/p_2," then (6) or (11) would alone determine r. But prescribing employment L leaves r and w/p_2 still to be determined.

The next sections show the wage-fundlike character of this competitive process.

V. *Wage-Fund Notions*

Perhaps the expression "wage fund" should be avoided altogether as conjuring up too many ghosts and as being too hopelessly ambiguous. Sometimes the wage fund meant merely sums of money "destined" for wage payments, whatever the word "destined" is supposed to mean. Sometimes it meant inventories of finished consumption goods "destined" for workers, and to some writers supposedly consisting of different consumption items than more elegant capitalists would deign to consume. Sometimes it meant a numerator of "all capital," which in some ill-described fashion got divided by the denominator of population number to give as an arithmetic quotient the real wage per capita. Finally in F. W. Taussig's resurrection, *Wages and Capital* (1896), the wage-fund doctrine merely becomes a reminder that production does take time and that men do not consume unfinished goods, with the implication of a certain short-run inexpansibility in the consumption goods available to the community (to nonworkers as well as workers).[22]

In connection with the present two-sector model, it is superficial to split consumption Y^t into two parts, Y^* "destined" for workers and Y^{**} destined for capitalists, and then to write down the trivial identities:

$$(1-\sigma_w)w^tL^t = p_2^t(Y^t - Y^{**}) = p_2^tY^*$$

$$\left(\frac{w}{p_2}\right)^t = \frac{(Y^t - Y^{**})/(1-\sigma_w)}{L^t}. \tag{20}$$

Except possibly for L^t, none of the right-hand variables are given constants. In the shortest run itself, when we are realistic enough to introduce inventories into our model, we see that not even total consumption Y^t is unilaterally given. And suppose it were: still, in anything but the shortest run, decisions could be made to cause it to change.

What does need emphasizing is the fact that in every run the supply-demand decisions of workers, of old capitalists, of new investors are

[22] In its most rigid form, the wage-fund doctrine implied that unionized or ununionized workers face a short-run aggregate demand schedule of exactly unitary elasticity. This neglects the short-run possibility of using up finished-goods inventories faster than the usual rate, and tells nothing about the longer-run demand elasticity, which could be on either side of unity. In its weakest form, it suggests that the demand for labor is not perfectly inelastic and that the demand curve's rightward and upward shift induced by accumulation *may* be slowed down by concerted measures to raise present wage levels at the expense of thrifty capitalists.

needed to give us determinate equations for our set of present and future prices (p_1^t, p_2^t, w^t, p_1^{t+1}, p_2^{t+1}, r^t, . . . etc.). Taussig was quite right in pointing out that the Malthus red herring of a (very-long-run) horizontal supply schedule of labor at the "[conventional] subsistence level" kept Ricardo, J. S. Mill, and most of the Classicals—but not the aging Malthus!—from perceiving how undetermined and implicit was their theory of current wage determination and pricing. Marx's reserve army is in some ways an even redder herring that deflects attention from the missing supply-demand relations.

Here I shall simply sketch in a superficial way the process determining wages, surplus values or interest, and goods pricing. We start out with a given K^t owned by its owners, with a given L^t perhaps to be taken as a demographic parameter. Today's Y^t we suppose to be given by past decisions, and we overlook changes in short-term inventories of consumer goods. The system has a history of prices and wages. This period's market must determine decisions on how much of (K_1^t, L_1^t, K_2^t, L_2^t) are to be hired to produce next period's (K^{t+1}, Y^{t+1}). The competitive market does this through determining now (p_1^t, p_2^t, w^t; r^t). Simultaneously a set of notions about future prices (p_1^{t+1}, p_2^{t+1}) are formed and in terms of these relative prices, employers make decisions. If goods were homogeneous, undoubtedly a futures market would spring up to register and resolve differences of expectations about future prices; but if this did not happen, our theory would still be valid after certain easy alterations.

The "profits" of employers are, retroactively reckoned, determined by comparing $p_1^tK^t$ and $p_2^tY^t$ with their past wage and machine costs. The profits resulting from today's decisions will similarly be known in the next period. In tranquil times, the *ex ante* hopes for profit and *ex post* realized profits will not differ too much; but differences that do develop will be noted in the market and will influence later decisions in the obvious direction.

"Net or excess demands" for (Y^t, K^t; K_1^t, L_1^t, K_2^t, L_2^t) will be determinate interdependent functions of (w^t, p_1^t, p_2^t; p_1^{t+1}, p_2^{t+1}; r^t; . . . etc.). Our number of independent equations is equal to the number of unknowns, with only price ratios being determinable until we specify enough about the supply and demand conditions for a circulating medium (*e.g.*, given gold coins; or minable gold; or paper currency issued by the State according to specified behavior rules; or stipulated banking practices).

My fixed-coefficient Marxian model, in the absence of technical innovations altering the (a, b) coefficients, would probably be characterized by attempted accumulation whenever r^t is high. As we have seen, this would cause r^t to be falling; with no physical deepening of capital

possible, capitalists would lose in income what workers gain, which might slow up the accumulation process and which later could even cause it to cease. (If we assume that interest and profit rates are quite high, we can perhaps avoid some of the effective-demand problems that arise from the temptation to hoard money when interest rates are very low.)

Where alternative (a, b) techniques exist, lower r^t will induce adaptations in technique. These adaptations can be expected usually to slow down the drop in total interest income. Does this mean that the real wage will grow less rapidly? If lower r^t induces irreversible (a, b) changes of a so-called "labor-saving" type, the rise in real wage could indeed be slowed down or even be wiped out; and if this were to happen, the fall in r^t would have been converted into a subsequent rise in r^t, interest rising more than the drop in total wages. However, any change to a new (a, b), which now pays only because r^t is lower, will produce a higher real wage for each r^t than would the old (a, b); but if the demand for "capital" is sufficiently elastic or sufficiently little inelastic, induced technical changes might slow up the rate of fall of r^t so much as to cause the real wage to rise more slowly than it would under a single technique. I suspect, but cannot prove conclusively, that a Marxian who takes seriously the fixed-coefficient single-technique case is selecting the very model in which improvement of labor's share of the total income would be easiest within the framework of an unchanged-technology capitalism.

Life's Libretto: One Technique or Many? The case of a single fixed-coefficient technique is a very peculiar one indeed. Increase labor by epsilon and its share of the product may go from 100 per cent to zero! The later neoclassical economists would consider this as the extreme case of a marginal product curve for labor that is infinitely steep over a wide range: confront so steep a curve with a coinciding infinitely-steep supply curve of labor, and you have indeed created an indeterminate equilibrium wage with all the scope for collective bargaining and class power struggles that you could want.

Perhaps Karl Marx really had such a technology in mind. Perhaps not. It may be reasonable to believe that Marx, like Ricardo and other early writers, and unlike modern neoclassicists, never explicitly thought about what properties of the production function (a concept not yet explicitly defined or named) he wished to posit. It would be reading into him things that he would not recognize to claim a smooth production function with infinite substitution possibilities. On the other hand, he speaks again and again of alternative techniques. While many of these clearly depict technological change in the production

function rather than movement within one function, the fact that the old methods are still known along with the new shows that Marx and Ricardo definitely envisage the existence of more than one technique. (Both Ricardo and Marx write of technical changes induced by price changes and adapted to changed price ratios; neither rules out the possibility that if the old price ratios were restored, the old technique might again become more economical.)

Whether or not Marx would resent being interpreted as a believer in a fixed-coefficient single-technique world, I should resent on behalf of the real world any such description. Go into any machine plant, pick up any engineering catalogue, study the books of physics and the histories of industrial processes, and you will see the variety of different ways of doing anything. If fixed Leontief coefficients (a_i, b_i) had characterized the world, it could never have got started. If the world has changed, the old processes are still remembered. Changing prices will induce accommodating changes in techniques. Perhaps the bookish economist will reply, "Foul! You are bringing in nonstatical, nonreversible changes." To this the realistic observer of the world will shrug his shoulders and answer, "So much the worse for a statical one-technique theory, or for that matter for any statical theory of production: but if we are to approximate reality by quasistatical tools, the more realistic production function to use is one with numerous alternative techniques, quite different in their input combinations and intensities."

We must not be put off by the bogey-man query: "Do you think that God created the earth with smooth Wicksteed homogeneous production functions involving a few aggregative factors, Socially Necessary Labor, Efficiency-unit Land, and Catch-all Dollar Capital?" To deny such a belief is not to confirm a belief in fixed-coefficients. A more realistic interpretation of actuality will recognize the existence of a large, perhaps finite, number of alternative techniques. The modern theory of linear programming permits the economist to handle these analytically; but even if we ivory-tower observers could not easily handle the analysis of many techniques, it would be another case of the Pathetic Fallacy to think that the actors in the real world will desist from making jig-saw puzzle substitutions because we economists can't easily analyze them.

John Jay Chapman once said that a visitor to this world would find its people behaving more like the people in a Verdi opera than in an Emerson essay. So if a visitor from Mars insisted upon a grandiose simplification of the economic system—instead of using the less dramatic methods of Walras, Chamberlin, and Keynes—I think he'd be

safer in positing an aggregative production function of the Clark-Wicksteed type than one of the Leontief-Walras type.[23]

VI. *The Reserve Army of the Unemployed*

I shall conclude my dissection by investigating whether the existence of a reserve army of the unemployed can do the powerful things Marxians have claimed for it. Can it lower real wages to subsistence? Can it lower real wages below the marginal product of the last man when all the unemployed are put to work? Can it lower real wages below the marginal product of the first man of the reserve army when put to work?

Such questions must not be answered in simple terms. First, we shall have to specify exactly what monetary assumptions we are making; what institutional assumptions with respect to unionism, labor mobility, interpersonal differentials in skills and zealousness; what microeconomic assumptions about the mix of demand; etc. I shall not attempt to deal with these intricacies but will for the sake of the argument walk along the road with the simple Marxian aggregative models, making drastically simplifying assumptions.

Thus I assume two industries: Industry I producing capital goods and Industry II producing consumption goods. I go along with the simplifying assumption that machines and chocolates are produced with the same organic compositions of labor and capital goods; and that all capital is used up in one period so that the Marxian "constant capital" concept is easiest to handle. I assume the unemployed workers are as zealous and able as the employed. I assume away monopsony and monopoly to see where cruel competition will lead.

How do the unemployed depress real wages? If the unemployed are away at a distance and unable to offer their services, they will have no effect on money or real wages. It is by offering to work for less, and only by so doing, that they can depress money wages. The employer cannot get his workers to accept a cut merely by talking about the threat of replacing them by the unemployed; he will get the cut only if experience has taught the workers that this is not an empty threat. If men out of work do offer to work for less, the money wage cannot remain stationary in a perfectly competitive labor market. The money wage will fall and continue to fall until no more excluded men bid it down. I stress these banalities because so much Marxian literature seems to regard the mere *existence* of the unemployed (or of the

[23] I speak here of the first-edition Walras. In his second-edition *Éléments*, Walras had the system select among a number of different techniques to minimize costs; and in his third edition, he considered the infinite-substitution homogeneous production function case. Leontief, it must be said, never meant that his fixed coefficients be applied to gross aggregates.

"disguised unemployed") as itself a reason for competitive wages to fall. The natural question to ask then is this: "What is the effect on wages after the unemployed have been employed? How much have they depressed money and real wages?" Today, thanks to Keynes and others, we know that this is a complicated question. Falling money wages need not mean falling real wages if prices are made to fall as much. Indeed, waiving favorable Pigou-Keynes effects resulting from increased real balances induced by the price-wage decline, we can construct models of hyperdeflation in which money wages push down prices indefinitely with unemployment never disappearing and real wages not necessarily changing. Had Marx used a reserve army of the unemployed as a reason for falling *money* wages, one could better understand the logic of his system.

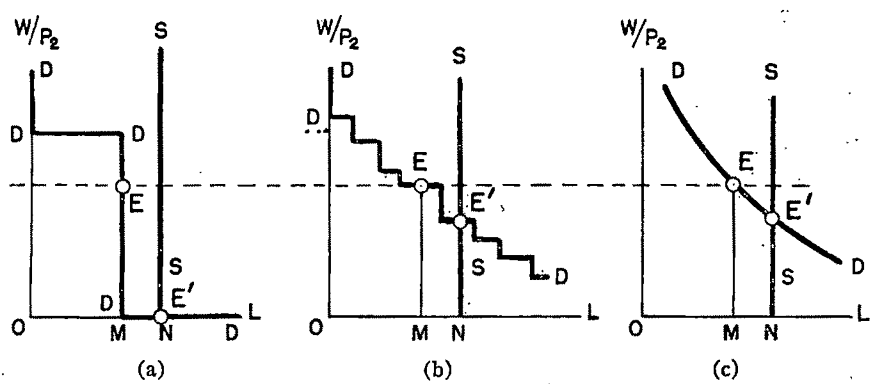

FIG. 2. In every case *DD* is "aggregate real demand for labor," *SS* is total labor force available for work, *MN* is the "reserve army of the unemployed," and *E′* the real wage when reserve army has disappeared.

To isolate the effects the unemployed have on real as against money wages, let's make the unrealistic supposition that they can bargain institutionally in terms of real wages—in terms of consumer goods or Ricardian corn. Then under the equal-organic-composition assumptions of our two-sector model, the "aggregative demand curve for labor in terms of wage goods" would be given by the discounted-marginal-physical-product curve of labor for either industry, the consumer-goods curve being exactly the same as the discounted-marginal-product curve in the capital goods industry once we have scaled the products so that they are 1-to-1 producible with the same labor and machine inputs.[24]

[24] The reader may make his own effective-demand assumptions to make this compatible with his theory of income determination. Thus, a good Keynesian will probably prefer to assume that aggressive government fiscal policy operates to offset any incipient deflationary or inflationary gaps threatened at full employment by nonintersecting saving and investment schedules. Some may give an active offsetting role to the central bank. Still others may be unaware or may deny that a problem could arise.

Figures 2a, 2b, and 2c show the resulting aggregative real demand for labor in the single-technique case, the many-technique case, and the infinitely-many-techniques neoclassical case. In every case, the unemployed reserve army of NM is made about 10 per cent of the labor force. Depending upon the technical elasticity of the marginal-product curve, the reserve army could reduce real wages by different amounts—but in Figures 2b and 2c wages can be reduced only by the reserve army's shrinking in size. The wage level E' in the three diagrams represents the lowest that real wages could fall when the reserve army had done its worst and become indistinguishable from the army of the employed. Would any competent observer of U.S.A., U.K., or U.S.S.R. technology believe that 10 per cent more men could not in any way be employed without making the last man incapable of adding much to product?[25]

The question is not whether in the shortest run, before employers knew they were to employ more and had made the necessary adjustments, marginal products might not fall greatly. Of course, they might fall. To get me to hire more workers in the next minute or day might require a great reduction in real wages. But let this happen for a few days or for months and years. Spurred by the ridiculously low real wages, employers will make needed adjustments and if we insist upon letting the real wage fall to absorb the unemployed in the long run, the equilibrium long-run wage will be at E' along the long-run marginal product curve *after* adjustments are made.[26]

I conclude from this way of looking at the problem that the strongest competition among the unemployed, the employed, and the employers will—when it has done its worst and depressed real wages enough to wipe out the unemployed—fail in modern western societies to depress real wages to anything like the subsistence level, instead bringing it down at worst to the (quite high) discounted marginal

[25] Writing in the 1860's, Marx could with some excuse think that real wages might fall to a subsistence level. A Marxian acquainted with the statistics of real wages in modern Western economies has no such excuse.

[26] A simple set of mathematical equations describing the content of Fig. 2c would be:

$$Y + (dK/dt) = Q(L,K),\ dK/dt = \sigma_w(LQ_L) + \sigma_r(KQ_K),$$

with government expenditure or aggressive central bank policy assuring that (dK/dt) is always such as to take up the resources not required for consumption. With fixed K, we can compute the reduction in real wage resulting from ΔL of the unemployed becoming employed, as follows: new real wage $= w + \Delta w = \partial Q(L + \Delta L, K)/\partial L$, and with $\Delta w/w$ equal to $[Q_{LL}L/Q](\Delta L/L)$, where the bracketed expression is the "reciprocal of the elasticity" of the marginal product curve at some intermediate point. Note that for given K and L, w is here quite independent of σ_w and σ_r. If we drop Marx's equal-organic-composition-of-capital assumption, this will no longer be true and the analysis has to be expanded.

product of labor at the level of employment equal to 100 per cent of the available labor force. Such a wage-floor is not only very high in the most advanced capitalistic society, but the bulk of the statistical evidence of economic history and the qualitative evidence concerning scientific invention and capital formation suggest as well that this wage-floor is advancing dynamically from year to year, decade to decade, at a rate that doubles perhaps about every 30 years.

VII. *Some Conclusions*

I have dealt with Karl Marx the economist, not Marx the philosopher of history and revolution. A minor Post-Ricardian, Marx was an autodidact cut off in his lifetime from competent criticism and stimulus. In applying to the models of Ricardo and Marx modern tools of analysis, I hope we are violating no rules of etiquette and in no way trying to suggest we are cleverer than they were!

What then is the verdict of the present dissection? Our post-mortem suggests the following conclusions:

1. Marx did do original work in analyzing patterns of circular interdependency among industries. Such work gains few converts and is not very helpful in promoting revolution or counterreactions. But like all pioneering effort it deserves the commendation of later craftsmen, and it deserves further development. There is half-truth in Schumpeter's adaptation of Clemenceau: "Marxian economics is too hard to be left to the Marxians." Only half, because the present paper is seen to involve little worse than school algebra and to be well within the frontier of modern economic theory.

2. Marx's labor theory of value of *Capital,* Volume I, does appear to have been a detour and an unnecessary one for the understanding of the behavior of competitive capitalism. The admittedly important analysis of imperfect or monopolistic competition is helped little or none at all by the "surplus-value" approach. That Böhm-Bawerk, Wicksteed, and Pareto were essentially right in their critiques of Marx seems borne out by the present investigation of the Marxian model.

3. I have concentrated, however, not on the problem raised for the pricing of many different goods by the unnecessary Marx-Ricardo labor-value assumptions. Instead I have concentrated on the more-neglected implications for relative goods-factor pricing of the Marxian surplus-value notations and notions. The present logical analysis suggests that the Marxian notions do not achieve the desired goal of "explaining the laws of motion or of development of the capitalistic system."

If it were true that the rich get richer the poor poorer, the distribu-

tion of income more skewed against labor and in favor of profit,[27] the two-sector models here analyzed would provide no particular hint of this. Indeed, writing in 1860 and being aware of the Industrial Revolution going on, an economist who took those models seriously should have (i) expected technological change to lower the (a, b) coefficients, (ii) should have expected the odds to favor a strong increase in real wages, the only exception arising from an extreme "bias" of inventions toward the extreme labor-saving type (a phenomenon *not* particularly sugested by the pre-1860 data known to financial journalists or men-of-affairs, nor particularly suggested by any a priori reasonings about the model or about the nature of technology).

I blame no one for failing to foresee the trends in the century after his death. But one can be forgiven for insisting upon the established fact that real wages in Germany, England, and America did rise more or less proportionately with total product from 1857 to 1957. To have been judged lucky by economic historians, Marx should have phrased a theory to explain the approximate constancy of wage's relative share of the national product, not the secular decline of this relative share. His actual models, we have seen, were perhaps better than he: for gifted with hindsight, we see that they contain in them no tendency for real wages to fall or to lag particularly behind the growth of output.

Nor do such models throw much light on the secular trends in the degree of imperfection of competition or on the propensity of the system to oscillate or stagnate. But all that is another story.

[27] We know little about the secular trends of the inequality of the personal distribution of income, as measured by Pareto's coefficient or by Gini's parameter describing the Lorenz curve. Pareto himself thought he had established a natural law of constancy of income inequality, independent of all public policies and institutional frameworks. The empirical basis for this generalization was never very impressive. The bulk of the available evidence, in fact, suggests that as capitalism has developed the Pareto coefficient has moved towards greater equality: whereas underdeveloped countries did, and do, show Pareto coefficients around 1.3, we find in developed countries Pareto coefficients of 2.0 for income before taxes and 2.2 after taxes. See J. Tinbergen, "On the Theory of Income Distribution," *Weltwirtschaftliches Archiv*, 1956, LXXVII, 156-57. Modern economics has no grandiose explanations to offer, but it can contribute to an analysis of the relevant forces at work.

THE GROWTH OF INSTALMENT CREDIT AND THE FUTURE OF PROSPERITY

By ALAIN ENTHOVEN*

During 1955, the amount of consumer instalment debt outstanding increased by slightly more than 23 per cent. This indication that the rather spectacular postwar growth in instalment credit had not come to an end was a cause for concern in both official and unofficial circles. The Council of Economic Advisers urged the enactment of legislation re-establishing standby controls and the launching of a major study of the problem.[1] At the request of the Council, the Board of Governors of the Federal Reserve System undertook a study and, in March 1957, produced five volumes on various aspects of consumer instalment credit.[2]

Concern over the growth of instalment credit has centered around two general problem areas which may be described respectively as cyclical and long-run. Essentially, the cyclical problem is this: the availability and the stock of consumer credit may intensify cyclical fluctuations which have their origins elsewhere. In a manner analogous to the cyclical behavior of inventories, the availability of credit in an upswing permits people to purchase durable goods in anticipation of an increase in their incomes. The "investment" in durables, in turn, has multiplier and accelerator effects. On the other hand, cyclical declines in income are intensified by the stock of debt outstanding. The burden of repayments may force people to decrease the fraction of their incomes spent on current consumption as their incomes decline. The failure of *ex ante* savings to fall with income places an

* The author is a member of the economic analysis department of The RAND Corporation. This analysis is very much an application of some of the ideas contained in the general approach to financial development of E. S. Shaw, of Stanford University, and J. G. Gurley, of the Brookings Institution. See, for example, their "Financial Aspects of Economic Development," *Am. Econ. Rev.*, Sept. 1955, XLV, 515-38, and other papers. The author wishes to acknowledge gratefully the comments and suggestions of Shaw, of M. W. Hoag and H. S. Rowen of The RAND Corporation, and of J. N. Morgan of the Survey Research Center, University of Michigan.

[1] *Economic Report of the President, January 1956,* pp. 93-94, 138.

[2] *Consumer Instalment Credit,* Board of Governors of the Federal Reserve System (Washington, 1957). For complete citation and a review of this study by W. L. Smith, see p. 966.

extra burden on monetary and fiscal policies.[3] The cyclical problem has an important monetary aspect. With the growth of financial intermediation in general and instalment credit in particular, the relationship between the money supply and the price level becomes ever more tenuous. To prevent rising prices of consumer goods during a period of prosperity, the central bank may have to resort to ever stronger measures as more borrowers and lenders find ways of circumventing the monetary system. Thus the growth of instalment credit may present a serious problem for monetary control.

The long-run problem may be illustrated by extrapolating the postwar rates of growth of debt and income. Instalment debt outstanding has increased by a factor of more than 12 since 1945, while national income has less than doubled. The annual relative increase in debt has exceeded 25 per cent in 6 postwar years. If these rates of growth were to continue, it is argued, instalment payments would soon equal income. But, clearly, long before this point would be reached, the burden of the debt would become intolerable and its growth would stop. When this happens, it is alleged, sales of consumer durables will decline and the prosperity, which has been financed in part by instalment credit, will end. This position was expressed by S. E. Harris:

> . . . from 1952 to the end of 1955 residential mortgages rose more than 4 times as much as national product, consumer credit 3½ times as much as national product, automobile credit 6½ times as much. In 1955, the process accelerated greatly: automobile credit rose by $3.9 billion, or more than one-third. It could not be expected that this rate of increase would continue. And is not a prosperity built on this kind of progression at least in part a sham prosperity? We are borrowing prosperity to some extent from the future.[4]

The same point of view was taken by H. M. Groves:

> . . . the economic gain of 1955 included "borrowed prosperity" supported by an acceleration of consumers' credit (and therefore money supply) that could not be maintained. A rise in consumers' credit so out of proportion to the rise in national product must eventually overburden the consumers' budgets with required payments.[5]

In an article entitled "The Coming Turn in Consumer Credit," Gilbert Burck and Sanford Parker of *Fortune* predicted with alarm that:

[3] See S. H. Slichter, "The Economics of Eisenhower: A Symposium," *Rev. Econ. Stat.*, Nov. 1956, XXXVIII, 357-85. Also, D. D. Humphrey, "Instalment Credit and Business Cycles," *Consumer Instalment Credit, op. cit.*, Pt. II, Vol. I, pp. 3-56.

[4] S. E. Harris, "The Economics of Eisenhower: A Symposium," *op. cit.*, p. 358.

[5] H. M. Groves, "The Economics of Eisenhower: A Symposium," *op. cit.*, p. 378. See also J. S. Atlee, "Consumer Credit Expansion: Macroeconomic Analysis and Data Requirements," *Consumer Instalment Credit, op. cit.*, Pt. II, Vol. I, pp. 254-94.

> Consumer short-term debt, perhaps the most controversial force in the booming U. S. Economy, is approaching a historical turning point. Having risen at an abnormally fast rate for ten years, it must soon adjust itself to the nation's capacity for going in hock, which is not limitless. Whether the rate of growth in consumer debt will slow down is no longer the question; . . . it *must* slow down.[6]

This paper is concerned with the long-run problem. It is my intention to show that alarm over the postwar experience is based upon a misleading view of the burden of instalment debt and an incorrect extrapolation of its growth. Consideration of the distribution of the debt and its economic significance should lead us to a new concept of its effects on consumer expenditure. My method of analysis will be to assume that income grows steadily, to extrapolate the growth of instalment debt since the war by the use of a model based upon the distribution of the debt, and to show that the continued growth of instalment debt, when correctly extrapolated, is not inconsistent with the assumed pattern of income growth.

I. *The Life-Cycle Model*

The basic model implicit in the conclusions of Harris and Groves, and in the popular view of instalment debt, may be described as an "expected-value" model based upon the position and behavior of the "average" consumer. If the stock of instalment debt outstanding is equal to 10 per cent of current national income, it is assumed implicitly that each income recipient is in debt by an amount approximately equal to one-tenth of his individual income. Since 1945, money income has grown at an average rate of about 6 per cent each year while instalment debt has grown at an average annual rate slightly exceeding 26 per cent. Extrapolating these rates, instalment debt which is now equal to about 10 per cent of personal income will equal 20 per cent of income in less than 5 years. Whether the critical value be a fifth or a half, at some point in the foreseeable future, consumers will be sufficiently immersed in debt that they will consider further increases in the ratio of debt to income to be intolerable. At this point, since they are all in debt by approximately the same amount in relation to their incomes, consumers will all curtail their durable-goods purchases. Presumably the ensuing recession in the consumer-durables industries will then be propagated, via multiplier and accelerator effects, to the rest of the economy.

By way of contrast, consider a simplified economy in which, for some reason, no consumer borrowing has taken place. Suppose that

[6] Gilbert Burck and Sanford Parker, "The Coming Turn in Consumer Credit," *Fortune*, Mar. 1956, LIII, 99-102 and 240-47.

a change in institutional structure or the removal of a restriction now occurs and that a class of "borrowers" appears. The borrowers are couples in their first year of marriage. Suppose that all of these borrowers have the same constant average propensity to incur debt, that is the same ratio of borrowing to income, and that no one else does any borrowing. Assume finally that all loans must be amortized over a fixed number of years. An economy in which no borrowing has taken place may seem to have little relevance to the problem at hand, but this is not the case. At the end of 1945, consumer instalment debt outstanding in the United States was less than \$2.5 billion, less than half the amount outstanding in 1941 and actually less than at the end of 1930. This abnormally low stock of debt was a consequence of wartime shortages and restrictions. Although it was not literally true in 1945, the assumption of a zero initial stock of debt in our model will be a useful abstraction. Let us trace the growth of debt and of durable-goods sales in this economy.

During the first year, an amount of borrowing will take place equal to the number of borrowers multiplied by their average income and by their average propensity to incur debt. At the end of the year there will be a stock of instalment debt outstanding equal, let us say, to $D(1)$. New borrowing in the second year is likely to exceed borrowing in the first year for two reasons. First, the number of borrowers will have increased. In fact, it is likely, in a growing population, that the number of borrowers will grow more rapidly than the population as a whole. However, for the sake of simplicity, let us assume that the age distribution of the population and the marriage rate are constant so that the number of borrowers will grow in the same proportion as the population.[7] Second, average income per capita will have increased. If the distribution of income with respect to age is stationary, then the total income of borrowers as a group will have increased in the same proportion as national income. Therefore, if, in our model economy, national income in the second year exceeds that of the first year by a factor of $(1 + r)$, new borrowing will increase also by the same factor.

The increase in the stock of debt outstanding during the second year will be equal to the difference between new borrowing and repayments. The process may be illustrated by a simple example. Suppose that repayments for all debt contracted in one year are divided equally

[7] For the time period which we are considering, this is not a particularly strong assumption. For example, in the United States between 1946 and 1956, the ratio of married couples to total population increased from .2234 to .2278. Population grew over this decade at an annual rate of 1.74 per cent while the number of married couples grew at an annual rate of 1.94 per cent. The difference between the two growth rates was too small to affect appreciably the growth of debt.

into two parts, one made a year later and one made two years later. Then debt outstanding at the end of the second year will be equal to the debt outstanding at the end of the first year, which happens to be equal to the amount of borrowing during that year, $D(1)$, plus new borrowing, $(1 + r)\ D(1)$, less repayments, $.5D(1)$, *i.e.*,

$$D(2) = (1.5 + r)D(1). \tag{1}$$

Debt outstanding at the end of the third year will be $D(2)$ plus new borrowing, $(1 + r)^2D(1)$ less repayments $.5D(1) + .5(1 + r)D(1)$, *i.e.*,

$$D(3) = (1.5 + r)(1 + r)D(1). \tag{2}$$

The longer-run behavior of the model under more general assumptions will be discussed in Part II. Here it will suffice to point out that the amount of new borrowing which takes place each year grows in the same proportion as national income. Thus continuous growth in debt-financed sales of durable goods in the same proportion as national income is consistent with the model. On the other hand, the stock of debt grows, in the early stages, at a much faster, though decreasing, rate in terms of itself. In our simple example, $D(2)$ exceeds $D(1)$ by a factor of $1.5 + r$ while $D(3)$ exceeds $D(2)$ by a factor of only $1 + r$.

The characteristic feature of this model is that the use of instalment debt is highly correlated with position in the life cycle. Borrowing tends to be a once in a lifetime matter and all borrowing is done by households which begin the year debt free. In this economy, the existence of outstanding debt in any individual household at the end of its year of eligibility for borrowing might be said to act as an absolute deterrent to further borrowing. Nevertheless, for the economy as a whole, the outstanding stock of debt does not act as a deterrent to new borrowing and to the purchase of durable goods, because the class of eligible borrowers is being replenished constantly at an increasing rate. This is the essential difference between the expected value model and the life-cycle model. In the former, the new borrowing must be done by people who are already in debt and hence the stock of debt may act as a deterrent to further borrowing.

Of course the life-cycle model represents a considerable simplification of the actual economy. We know that in fact many users of debt stay in debt for extended periods and regard the payment of one debt as an opportunity to incur another. What we have done here is to isolate the life-cycle effect in its pure form. In the actual economy, it will tend to offset the inhibiting effect of accumulated debt.

The effects of accumulated debt on the behavior of individual households have been analyzed by L. R. Klein and J. B. Lansing and by

James Tobin.[8] Both studies were multivariate analyses of reinterview data from the Surveys of Consumer Finances of the Survey Research Center for 1952 and 1953.[9] The interpretation of the results is not entirely straightforward. Klein and Lansing found a significant positive partial correlation between the ratio of purchases of durable goods to income during the year and the ratio of debt outstanding to income at the beginning of the year, in a multiple regression which included such variables as income, demographic status, expectations and attitudes. The positive correlation, which seems to imply that debt did not act as an inhibitor of durable-goods purchases, can be explained as the result of the persistency of personality traits. People who have been in the habit of buying durable goods will tend to be in debt and will also tend to purchase more durable goods, and vice versa. Thus for any individual family, debt may still be a deterrent, but the evidence is inconclusive. Klein and Lansing also found a positive correlation between the ratio of debt to income and the ratio of consumption to income. Using a somewhat different set of variables, Tobin also found a positive, though not significant, correlation between the ratio of durable-goods expenditure to income and the ratio of debt at the beginning of the year to income. He argues that the persistency of personality traits would lead one to expect a strong positive correlation between the two ratios and that the failure of such a correlation to materialize is evidence that, for individual households, debt does inhibit expenditures on durable goods. Unfortunately, the available data do not permit a test of Tobin's conjecture. However, at best, the evidence in favor of the deterrent effect is not very strong.

Tobin did find a significant negative correlation between the ratio of debt at the beginning of the year to income and the ratio of change of debt during the year to income. Households beginning the year deeply in debt tended to reduce their indebtedness while households which began the year with little or no indebtedness tended to incur new debt. This is interpreted by Tobin as evidence that for individual households, "high debt levels deter further use of debt in financing purchases." It has been pointed out already that the existence of a

[8] L. R. Klein and J. B. Lansing, "Decisions to Purchase Consumer Durable Goods," *Jour. Marketing*, Oct. 1955, XX, 109-32; James Tobin, "Consumer Debt and Spending: Some Evidence from Analysis of a Survey," *Consumer Instalment Credit, op. cit.*, Pt. II, Vol. I, pp. 521-45.

[9] The sample which was used in these studies is valuable because it contains two observations on each household made with a year's separation. Thus debt at the beginning of the year and expenditures on durable goods and changes in debt were measured more accurately than they would have been if the variables were measured from a single point in time. On the other hand, the sample has serious shortcomings. It excludes households which were formed or dissolved during the year, families which moved and farm families. Also the sample was quite small, numbering between 700 and 800.

deterrent effect for individual households need not imply that an analogous effect operates for the economy as a whole. The life-cycle model reconciles the two. However, it is interesting to observe that the negative correlation which Tobin found corresponds very closely to what one would expect to find in cross-section data sampled from an economy conforming strictly to the life-cycle model: those households which are in debt at the end of a year reduce their indebtedness in the following year while all new debt is incurred by households which begin the year debt-free. It would be plausible to argue, then, that at least part of the correlation which Tobin interpreted as evidence of the deterrent effect is in fact the consequence of the operation of the life-cycle effect.

Even if some of the simplifying assumptions on which the model is based are not fulfilled, the life-cycle effect will still be operative. For example, as I mentioned earlier, the number of borrowers may grow at a relative rate exceeding that of the total population. In this case, new borrowing each year would tend to grow relatively more rapidly than total income. Also, the income elasticity of demand for durable goods may exceed unity. In this case, the average propensity of borrowers to incur debt would increase over time. Alternatively, there might be a trend towards substitution of durable goods for personal services independently of income growth. Each of these eventualities would require a slightly different growth model from the simple one to be presented in this paper. Nevertheless, none of them would interfere with the operation of the life-cycle effect.

The relevance of the life-cycle model to the American economy can be established with the help of data from two Surveys of Consumer Finances conducted for the Federal Reserve System by the Survey Research Center.[10] Data from the two Surveys are presented in Table I. All spending units in the economy are divided into seven categories: single persons between 18 and 44 years of age, single persons 45 and over; married couples of whom the husband is between 18 and 44

[10] "1952 Survey of Consumer Finances," Pt. III, *Fed. Res. Bull.*, Sept. 1952; "1956 Survey of Consumer Finances, Consumer Indebtedness," *Fed. Res. Bull.*, July 1956. The 1952 and 1956 data are respectively based on the results of approximately 2800 interviews. The data are quite unreliable as indicators of the total magnitude of instalment debt outstanding. A comparison published in the July 1956 *Bulletin* between aggregate debt estimates based on Survey data and similar estimates by the Federal Reserve based on lender reports indicates that the latter are nearly twice the former. It is fair to presume that the lender data are more accurate. However, these is no reason to believe that the frequency distributions of instalment debt obtained from Survey data are biased or inaccurate. Therefore, I shall use the Survey data as evidence of the distribution of the debt and lender data as a measure of aggregate magnitudes. The questionnaires in the two years were based upon different concepts of income and debt and hence data for the two years are not comparable. However, our objective here is not to compare years but to study the relationship between the use of debt and position in the life cycle.

TABLE I.—THE RELATIONSHIP OF CONSUMER DEBT AND INSTALMENT PAYMENTS TO INCOME, BY FAMILY STATUS[a]

(Percentage Distribution of Spending Units)

	Instalment Payments as a Percentage of Disposable Income, Early 1956[b] (Per cent)			Consumer Debt as a Percentage of Money Income before Taxes, Early 1952[b] (Per cent)		
	Zero	1 to 9	Over 10	Zero	1 to 9	Over 10
Single:						
Age 18–44	60	8	31	60	25	15
Age 45 and over	84	4	11	73	17	9
Married:						
Age 18–44, no children[c]	44	17	37	41	29	27
Age 18–44, children	35	22	40	25	39	34
Age 45 and over, children	47	22	29	39	37	23
Age 45 and over, no children	73	9	17	65	20	13
Other	48	19	30	44	39	17

[a] Single spending units include unmarried, widowed, separated and divorced persons without children. Married spending units include only those in which both husband and wife are present. Age refers to age of head of spending unit.

[b] The percentages do not always add up to 100 because the status of some units was not ascertained.

[c] "No children" is defined as no children under 18 years of age.

Sources: "1956 Survey of Consumer Finances, Consumer Indebtedness," *Fed. Res. Bull.*, July 1956, Suppl. Table 8; "1952 Survey of Consumer Finances, Pt. III," *Fed. Res. Bull.*, Sept. 1952, Table 25.

and who have no children under 18; married couples between 18 and 44 with children under 18; couples, 45 and over with children; couples, 45 and over with no children under 18; and all others.[11] The data show that the frequency and the amount of debt are highly correlated with family status. They are quite consistent with the assumptions about the distribution of consumer debt underlying our model. Debt varies systematically over the life cycle. Young single people use consumer debt much less than do young married people, and among married people, those with children use debt more than those without children. By the time the husband has reached 45 and the children have reached 18, most couples are no longer making payments on instalment debt. The relative frequency of indebtedness declines steadily with increasing age. Only a tenth of the spending units headed by persons 65 and over reported instalment debt in early 1956.[12] Thus

[11] A spending unit, as defined in the surveys, consists of all related persons living together who pool their incomes. "Other" spending units include various combinations of adults and children which do not fall in the other groups, and spending units for which family-status data were not ascertained. An example of the former would be a widow with children.

[12] "1956 Survey of Consumer Finances," *op. cit.* For other empirical studies supporting this hypothesis, see J. A. Fisher, "Income, Spending, and Saving Patterns of Consumer

all borrowers "have their exits and their entrances, and one man in his time plays many parts." In a steadily growing economy, each year some borrowers will pay off their debts and new younger borrowers will replace them.

From a statistical point of view, our argument so far has one shortcoming. We have compared two variables, the ratio of instalment debt to income and stage in the life cycle, without in some way controlling other relevant variables. In a complex situation such as this, bivariate analysis may be misleading and firm statistical conclusions require a multivariate approach.[13] In a study entitled "Factors Associated with the Use of Consumer Credit," J. B. Lansing, E. S. Maynes and M. Kreinin estimated the probability that a spending unit would owe instalment debt as a function of a large number of possibly relevant variables.[14] By successively dropping variables which did not prove to be significant determinants of a spending unit's probability of being in debt, they reached the following list of relevant factors: income, liquid asset holdings, stage in life cycle, region, stability of income, whether the head of the unit is a farmer and whether or not the unit owns a home on which there is a mortgage. The study also included estimates of mean annual instalment payments for those people who did owe debt, by stage in the life cycle. From these results, we may derive the statistics which are presented in Table II.[15]

The table shows the conditional probabilities that three representative spending units will be in debt during different stages in the life cycle, given the other relevant factors. The table provides clear evidence that multivariate analysis supports our general hypothesis. Both the frequency and the amount of instalment debt are highly correlated with the life cycle.

Thus the fact that at any given time some sections of the population are heavily in debt does not imply that the rate of sales of durable goods must soon decline. Each year new families are being formed and children are being born so that new potential borrowers regularly step up to fill the places of those borrowers who may have become debt-saturated. Thus, the debt rotates through the population.[16] People in

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Units in Different Age Groups," *Studies in Income and Wealth*, Vol. XV, National Bureau of Economic Research (New York, 1952), pp. 75-102; Tobin, *op. cit.*

[13] See Tobin, *loc. cit.*

[14] *Consumer Instalment Credit, op. cit.*, Pt. II, Vol. I, pp. 487-545. The data upon which this article is based are taken from the Survey of Consumer Finances of early 1956.

[15] The estimates of mean annual payments should of course be interpreted with the reservations which have been expressed above about the reliability of the Survey data from the point of view of magnitude of the debt. However, these estimates are interesting as relative weights.

[16] See E. S. Shaw, "The Economics of Eisenhower: A Symposium," *op. cit.*, p. 377.

their twenties and thirties typically borrow while those in their forties pay off their debts and accumulate financial assets which are directly or indirectly the debts of the debtors. Sales of durable goods are sustained by those who are relatively debt-free, and, as they purchase durables and go into debt, their places in the ranks of the debt-free are taken by others.[17]

TABLE II.—CONDITIONAL PROBABILITIES OF DEBTOR STATUS AND AVERAGE ANNUAL INSTALMENT PAYMENTS BY STAGE IN LIFE CYCLE

	Family A[a]	Family B[b]	Family C[c]	Average Annual Payment
1. Older (over 45), single people	.18	.36	.47	$365
2. Older (over 45), married, no children living at home	.23	.41	.52	560
3. Young, single	.28	.46	.57	600
4. Older (over 45), married, children living at home	.33	.51	.62	490
5. Young, married, no children; young, married, children, youngest at least 6 years old	.38	.56	.67	669
6. Young, married, children, youngest child under 6	.43	.61	.72	625

[a] Family A has an income between $7,500 and $10,000, a bank balance between $200 and $400, it does not live in the West, it does not live on a farm, it reported no change in its income during 1955 and it owns a home on which there is a mortgage.

[b] Family B has an income between $4,000 and $5,000, less than $200 in the bank, it lives in a Western city, it reported a change in its income in 1955 and it owns a home with a mortgage.

[c] Family C is identical to Family B in all respects but income. Its income is between $7,500 and $10,000.

II. *A Model of Debt-Income Growth*

Returning now to the dynamic aspects of the life-cycle model, we may develop the implications of our hypotheses about the growth of debt in a more general form. In equations (1) and (2) of Part I, we traced the growth in the stock of debt outstanding up to the end of the third year in an economy in which new borrowing grew in the same proportion as income and in which repayments were linearly

[17] The life-cycle model also may be useful in the analysis of various cyclical and monetary questions. For example, during a recession the decline in income is not prorated over the whole population. The main burden of falling income is borne by those who become unemployed. It would be interesting to investigate the incidence of cyclical unemployment in relation to the distribution of instalment debt. If those who are most likely to face cyclical unemployment are also relatively deeply in debt, then the intensifying effects of consumer debt on a recession would be relatively great. If, on the other hand, families who are relatively deeply in debt tend to be headed by men who are established in their jobs and have secure incomes, then the outstanding debt would have little if any depressing effect upon aggregate demand.

related to new borrowing in previous years. We shall now see that, under similar assumptions, the growth rate of debt in terms of itself will exceed that of income in an economy with a low initial debt level, and that the two rates will approach each other asymptotically. In the limit, the ratio of debt to income will be constant and stable. These aspects of the theory can be expressed algebraically in a simple model which will provide us with a basis for the extrapolation of the postwar experience and a means for its quantitative assessment.

First, we assume that in the long run income can be thought of meaningfully as growing at a constant relative rate r. Letting t denote the number of years that have elapsed since the base year and letting Y denote income, we may write

$$Y(t) = Y(0)(1 + r)^t. \tag{3}$$

Second, we assume that new borrowing in any year is proportional to income in that year, and that repayments in any year are equal to a linear combination of new borrowing in previous years, for the economy as a whole. Since the absolute increase in the stock of debt each year is equal to the difference between new borrowing and repayments, and since repayments must be equal to a linear combination of the incomes of previous years, it follows that the absolute increase in the stock of debt outstanding each year must be equal to a linear combination of the incomes of the same year and previous years.[18] For the sake of illustration, let the repayments be complete by the end of the third year. Then we may write

$$D(t) - D(t-1) = a_1 Y(t) + a_2 Y(t-1) + a_3 Y(t-2). \tag{4}$$

Combining (4) with (3), we have:

$$D(t) - D(t-1) = (1+r)^t Y(0)\left[a_1 + \frac{a_2}{(1+r)} + \frac{a_3}{(1+r)^2}\right] \tag{5}$$

the expression in brackets being a constant. This illustrates the general conclusion that under our assumptions, in their least restrictive form, the absolute increase in the stock of debt outstanding each year is proportional to a variable which grows at the same rate as income. Thus, with no loss of generality we may write:

$$D(t) - D(t-1) = aY(t). \tag{6}$$

In a more refined analysis, perhaps for the purpose of prediction, one might want to introduce explicitly the growth of population and

[18] Let $B(t)$ represent new borrowing and let $R(t)$ represent repayments in the year t. We have assumed (i) $B(t) = bY(t)$ where b is a constant, and (ii) $R(t) = L[B(t-1), \cdots, B(t-n)]$ where L represents some linear combination. Then (iii) $D(t) - D(t-1) = B(t) - R(t)$. Substituting (i) into (ii) for each year and then (i) and (ii) into the right side of (iii), we obtain $D(t) - D(t-1) = bY(t) - L[bY(t), \cdots, bY(t-n)]$, "a linear combination of the incomes of the same year and previous years."

per capita incomes, together with their distributions, into equation (6). Also, one might chcose to introduce some measures of the terms of instalment lending. However, for the purpose at hand, which is to interpret the postwar experience, the simpler assumption will be adequate.

We now relax the assumption made in Part I that debt outstanding is initially equal to zero. Instead, we shall enter the debt-income growth process at an arbitrary base year which has the property that debt is positive but small in relation to its equilibrium value. This permits us to avoid the complications introduced in the first few years of debt accumulation by the fact that the full repayments schedule has not yet had time to come into effect. Adding the stock of debt outstanding in the base year to the increments since then, we may deduce from (3) and (6):

$$D(t) = \sum_{n=1}^{t} aY(n) + D(0) \tag{7}$$

whence

$$D(t) = \frac{a(1+r)}{r} Y(0)[(1+r)^t - 1] + D(0). \tag{8}$$

From (3) and (8) we may draw our basic conclusions:

$$\frac{D(t)}{Y(t)} = \frac{a(1+r)}{r} - \left[\frac{a(1+r)}{r} - \frac{D(0)}{Y(0)}\right](1+r)^{-t}, \text{ and} \tag{9}$$

$$\lim_{t\to\infty} \frac{D(t)}{Y(t)} = \frac{a(1+r)}{r}. \tag{10}$$

Thus, if the stock of debt is small to begin with, the ratio of debt to income will approach asymptotically a stable limit from below. The limit is given by equation (10). Equation (8) can be used also to give us

$$\frac{D(t) - D(t-1)}{D(t-1)} = r\left[\frac{aY(0)(1+r)^t}{aY(0)(1+r)^t - aY(0)(1+r) + rD(0)}\right] \tag{11}$$

whence

$$\lim_{t\to\infty} \frac{D(t) - D(t-1)}{D(t-1)} = r. \tag{12}$$

Therefore, the relative rate of increase in the stock of debt will approach r asymptotically from above. However, in the early years, it will be large, especially if $D(0)$ is small. For example, if $D(0)$ is equal to zero, then

$$\frac{D(2) - D(1)}{D(1)} = (1 + r) \tag{13}$$

$$\frac{D(3) - D(2)}{D(2)} = \frac{(1 + r)^2}{(2 + r)}. \tag{14}$$

The value of (13) is slightly in excess of 100 per cent, that of (14), just greater than 50 per cent for likely values of r.

This model can be fitted to the end points of the period 1945-56. For illustrative purposes, I have chosen personal income and instalment credit outstanding. The basis for selection of 1945 as the base year is the belief that a definite structural change took place with the end of the war. Although the wartime regulation of consumer credit did not terminate until November 1947, there were revisions and relaxations of the rules in 1945 and 1946. The structural change can be identified with the reappearance of consumer durables on the civilian market. The results of fitting the model to the data of these years are shown in Table III. In interpreting the results, it will be useful to remember that the annual change in instalment debt outstanding is the difference between two relatively large variables, namely, credit extensions and repayments. Thus, if the extensions and repayments series have the variability which is normal in economic time series, the difference between them, the annual increment in the stock of debt, will exhibit great variability in relation to its size.[19] Therefore, it would be a mistake to extrapolate the increase in debt outstanding during one year without reference to changes in the preceding and subsequent years. Rather, the growth of instalment credit since the war should be viewed as a whole or at least in segments of several years' duration.

The estimate of r obtained by fitting (3) to income in 1945 and 1956 is 6.02 per cent. The estimate for a obtained by fitting (8) to data for the same years is .0107. Taken together, these figures imply a limiting ratio of instalment debt to personal income of 18.84 per cent. In Table III, the odd-numbered columns contain the actual values for personal income, instalment debt, changes in debt from year to year, expressed as a percentage of debt in the earlier year, and the ratio of debt outstanding to income. The even-numbered columns contain the

[19] For example, let x and y be random variables with the following statistical properties: the expected value of x, $E(x)$, is 39, $E(y)$ equals 37, the variance of both is 9 and their covariance is equal to 4.5. Then var $x/E(x) = 9/39$, var $y/E(y) = 9/37$, but

$$\frac{\text{var } (x - y)}{E(x - y)} = \frac{\text{var } x + \text{var } y - 2 \text{ cov } xy}{E(x - y)}$$

which is equal to 4.5.

TABLE III.—ACTUAL AND PREDICTED GROWTH OF INCOME AND INSTALMENT CREDIT, 1945–1956

	Actual $Y(t)$ $\$10^9$ (1)	Predicted $Y(t)$ $\$10^9$ (2)	Actual $D(t)$ $\$10^6$ (3)	Predicted $D(t)$ $\$10^6$ (4)	Actual Percent Change in $D(t)$ (5)	Predicted Percent Change in $D(t)$ (6)	Actual $\frac{D(t)}{Y(t)}$ (7)	Predicted $\frac{D(t)}{Y(t)}$ (8)
1945	171.2	171.2	2,462	2,462	—	—	.0144	.0144
1946	178.0	181.5	4,172	4,403	69.46	78.84	.0234	.0234
1947	190.5	192.4	6,695	6,460	60.47	46.72	.0351	.0336
1948	208.7	204.0	8,996	8,643	34.37	33.79	.0431	.0424
1949	206.8	216.3	11,590	10,955	28.83	26.75	.0560	.0506
1950	227.0	229.3	14,703	13,408	26.86	22.39	.0648	.0585
1951	255.3	243.1	15,294	16,007	04.02	19.38	.0599	.0658
1952	271.8	257.8	19,403	18,764	26.87	17.22	.0714	.0728
1953	286.0	273.3	23,005	21,685	18.56	15.57	.0804	.0793
1954	287.3	289.7	23,568	24,784	02.45	14.29	.0820	.0856
1955	306.1	307.1	29,020	28,069	23.13	13.25	.0948	.0914
1956	325.6	325.6	31,552	31,552	08.72	12.41	.0969	.0969

Sources: The data prior to 1956 for this table and for subsequent calculations were obtained from Statistical Appendix E of the *Economic Report of the President*, January 1957. The 1956 data were obtained from the *Survey of Current Business*, March 1957.

comparable figures "predicted" by the model. For our present purpose, the comparison between columns (5) and (6) is the most interesting. Considering the high variability of the $D(t) - D(t\text{-}1)$ series, the fit is surprisingly good and certainly good enough to justify the conclusion that the data in column (5) are not inconsistent with the hypothesis that their pattern of long-run development is that shown in column (6). The instances in which the fit is poor can be traced directly to short-run business cycles, and the positive errors resulting from cyclical upswings are approximately offset by the negative discrepancies in the recessions. If we extrapolate the postwar growth in instalment credit on the basis of this model, we may conclude that although debt will continue to grow more rapidly than income for some time, it will, in the limit, approach about 19 per cent of income. According to this reasoning, there is no reason to think that debt will swamp income or that the over-all postwar rate of growth of debt, when extrapolated correctly, is inconsistent with the continued growth of income.

The sensitivity of these conclusions to the assumption of particular beginning and ending points can be tested by calculating growth rates and the implied limiting debt-income ratios for different pairs of years. A sample of the results of such calculations for various years is shown in Table IV. The table shows that the limiting debt-income ratio is not very sensitive to the choice of years. It is not surprising that

extrapolation of the 1929-1956 data should indicate a lower ratio than that indicated by the postwar years. For although, in comparison with the postwar years, the rapid growth in income in the war years almost offset the stagnation of the 'thirties, economic conditions both during the war and during the depression, each for different reasons, inhibited the growth in instalment debt.

TABLE IV.—LIMITING DEBT-INCOME RATIOS IMPLIED BY THE DATA OF SELECTED SETS OF YEARS

Personal Income and Instalment Debt	a	r	$\lim \frac{D(t)}{Y(t)}$
1929–1956	.005702	.0506	.1184
1946–1950	.01268	.0627	.2149
1950–1956	.009977	.0620	.1709
1954–1956	.01265	.0646	.2085
1945–1956	.01070	.0602	.1884

III. *Conclusions*

The foregoing analysis contains both a theory of growth of consumer instalment credit and an interpretation of the postwar experience. The former, which was formalized in the model of debt-income growth, indicates that the rate of growth of instalment debt converges to the rate of growth of income with the passage of time and that, in the limit, the ratio of debt to income is stable. If the debt-income ratio is initially below its equilibrium level, then the relative rate of growth of debt will always exceed that of income, converging on the latter asymptotically from above. The debt-income ratio will approach its limit asymptotically from below. Thus, contrary to one popular view, it is not correct to suppose that a progression in which the relative rate of growth of debt exceeds that of income must be temporary and of short duration or must overburden consumers' budgets with repayments.[20] The model also shows that an (exponentially) increasing absolute rate of increase in the stock of debt is logically compatible with a declining relative rate of increase. Thus, contrary to another popular view, the fact that the relative rate of increase in the stock of debt must slow down does not imply that the absolute rate must also slow down.[21] However, it is the absolute rate of increase

[20] S. E. Harris and H. M. Groves, *op. cit.*

[21] Burck and Parker, *op. cit.*, used an incorrect method of extrapolation of the rate of increase of the debt-income ratio: ". . . instalment debt outstanding has grown from 5 per cent of consumers' disposable money income in 1948 to 10.9 per cent in 1955. If this rate of increase were to continue for another seven years, instalment debt outstanding would

which is relevant for the growth of durable-goods sales and national income. According to the model, this rate is proportional to income. Therefore, the growth of debt is *not* incompatible with continued prosperity.

Turning to the postwar experience, it is clear that the principal explanation for the very high growth rates of the stock of instalment debt is to be found in the abnormally low ratio of debt to income at the end of the second world war. Since the end of the war, the growth rate of instalment debt has converged toward the growth rate of income. Between 1946 and 1947, personal income grew by 7 per cent while instalment debt increased by 60.5 per cent. Between June 1956 and June 1957, personal income grew by 5.2 per cent while instalment debt increased by 7.5 per cent.[22] Considering the general instability of the postwar decade, the steadiness of the convergence has been quite surprising. Extrapolation of the growth rates of this period with the debt-income growth model points to a ratio of this type of debt to personal income of about one-fifth.

This analysis does not imply that a good case cannot be made for stand-by controls of consumer credit, for it may still be true that the existence of consumer debt intensifies business cycles caused by other factors, and that the availability of instalment credit exacerbates inflationary price movements. However, the analysis does suggest that consumer instalment debt has not grown, since the war, at a rate which cannot be maintained, contrary to widely held views. Thus recent experience does not presage an end to prosperity. On the contrary, the growth of instalment debt has been an important ingredient of the postwar boom. The statistical data presented in Part II indicate that at a certain stage in the life cycle, most people become net savers who desire to accumulate financial assets. On the other hand, at an earlier stage in the cycle, when they are forming families, most people become net dissavers. The growth of instalment credit has facilitated the channeling of the savings of older people to finance the deficits of the

have to rise to about 17 per cent of disposable income in 1962." Apparently they extrapolated linearly the change over the previous seven years. If this is what they understand by "the rate of increase of instalment debt," it is not surprising that they predict that it must slow down, for this "rate," if extrapolated, would lead eventually to an infinite ratio of debt to income no matter how small a positive increase took place in the ratio during the base period. In terms of personal income and instalment debt, their figures would be a ratio of debt to income of .0431 in 1948 and a ratio of .0948 in 1955 (see Table III, above), or an increase of .0517. Extrapolating linearly for another 7 years by adding the change over the past 7 to the 1955 ratio, one obtains .1465 as their "prediction" for 1962. The authors make it clear that they do not believe that the economy could support such an increase. On the basis of equation (9), the extrapolated debt-income ratio for 1962 is .1239.

[22] *Mo. Rev. Credit and Business Conditions*, Federal Reserve Bank of New York, Aug. 1957, XXXIX, 116.

younger group. As a consequence, the economic desires of both groups, from this point of view, are satisfied. If it were not for the growth of instalment credit, the savers would still attempt to save, but their saving would not be offset at high levels of income by the dissaving of the deficit sectors. The latter would have to accumulate durable goods at a slower rate out of current income. Thus, far from exerting a depressing influence on income, the growing stock of instalment debt has performed and can continue to perform an important and desirable economic function.

NEW ZEALAND'S EXPERIMENT IN ECONOMIC PLANNING

By J. B. Condliffe*

In December 1935 the New Zealand Labour Party came to power for the first time. It remained in office until December 1949. During that time it carried through a policy designed first to insulate the domestic economy from fluctuations in its external markets, and then, upon the basis of stabilized export receipts, to stabilize price relationships within the economy, redistribute the national income, establish a complete system of social security, and develop the national economy.

These fourteen years fall into three phases. The first prewar years were characterized by recovery from depression conditions and policies. The next six were war years. The postwar years 1946-49, with which this article is primarily concerned, were the crucial test of Labour's policies.

I. *The Labour Party's Program*

The prime objective of the policies of the Labour Party was to build in New Zealand a planned economy behind the shelter of regulated prices for exports and selective import controls. The preamble of the Labour Party program in 1933 had declared:

> Overseas prices and conditions cannot any longer be allowed to dictate New Zealand's living standards. By proper planning of production, with control of marketing and finance, New Zealand can establish her own living standard.

There was a militant wing in the party which believed that New Zealand was strangled by "finance capitalism" and that the only obstacle to the development of the country and rising living levels was "per cent interest." Those who believed this were not content to advocate the reduction of overseas debt. They advocated the use of state credit at low interest rates, or interest-free, to build homes, install hydroelectric plants, expand roads and railways and develop both primary and secondary manufacturing enterprises, as well as to finance social security. They were clear that their program would lead to socialization of production with maximum use of local resources and increasing

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self-sufficiency. The surplus of export goods was to be bartered for imported materials on long-term reciprocal bulk-purchase agreements. A book expounding these ideas, with a laudatory introduction by the leader of the Parliamentary Labour Party in Great Britain, ran rapidly through several reprintings in 1938 and 1939.[1] New Zealand was to set an example to the world by developing an economy free of public and private debt, and independent of the fluctuations in its overseas markets.

This prescription was not followed and the author soon afterwards lost his ministerial office, his membership of the party and his seat in the House. The government was not prepared to embark on the policies he advocated, and public opinion, despite the bitter experience of the depression and the persistence of a substantial minority of advocates of "costless credit," was not convinced that New Zealand could be made independent of the export market or develop into a utopia of stabilized relationships between the various segments of a socialized economy. The land was not socialized, nor farm and factory production, nor banking.

The depression of 1930-35 had been severe. Export prices had fallen heavily. The terms of trade worsened. The Coalition government had pursued orthodox deflationary policies, balancing the budget, and meeting heavy external debt payments at the cost of lowered living levels and massive unemployment. When Labour came to power in 1935 the worst was over. The budget was balanced, revenue was buoyant, export prices were rising and unemployment, though still high, was falling. Moreover London balances had been built to a comfortable level and the Reserve Bank which opened in August 1934 had redeemed Treasury bills held by the trading banks so that credit within New Zealand was abundant and cheap.

Labour had a mandate to raise wages and expand social security, to undertake public works and promote employment. It had also promised to buy all exports of wool, meat, dairy produce and other exports at a price to be fixed so that it would return a reasonable standard of living to the farmers. The wool and meat growers rejected the offer, preferring to market their own produce through established private channels. The dairy farmers welcomed it. When the war came, all exports were bought by the Marketing Department of the government, and except for wool this arrangement continued into the immediate postwar years.

From 1935 to 1939, therefore, Labour pursued a reflationary policy. Wages were restored to predepression levels, hours were reduced from 44 to 40, and working conditions were improved. Social welfare pay-

[1] J. A. Lee, *Socialism in New Zealand* (London, 1938).

ments were increased and in 1938 a complete system of social security, including free medical and hospital service, was introduced. Increased productivity and rising export prices till 1938 made possible these generous policies. They met with widespread popular approval, despite the running-down of London balances caused partly by capital flight, partly by overimportation. The election of November 1938 gave Labour an overwhelming victory, but exchange control had to be introduced a month later. The test of its policies might have had to be faced soon thereafter if the war had not come along.

The war was financed along orthodox lines. Taxation was heavy. There was a broad response to the issues of public loans. People worked hard and saved hard. Public works were restricted to war necessities. Consumption, especially of imports, was cut down. The surpluses in the economy were mobilized for war expenses. Insulation was maintained during the war against rising instead of falling export prices. Stabilization of wages, rents and prices was achieved by preventing the income expansion that would have been generated if the increased export receipts had not been segregated in special accounts and if taxation and war loans had not mopped up income surpluses. The government did not use its control over the Reserve Bank to finance the war.

II. *The Situation in 1946*

New Zealand emerged from the war taut with suppressed inflation. The government was in a difficult situation politically as well as economically. After the first popular years of reflation, the arduous war effort had been carried to a successful conclusion. New Zealand had contributed its full share to the Allied victory, in Europe, as in the Pacific. The people had worked hard and gone without imported amenities. The farmers had acquiesced in relatively low prices for their produce and had seen the growing surplus of export receipts withheld by the government. The trade unions had sacrificed the forty-four hour week and many hard-won gains in working conditions and had for the most part accepted the freezing of wages at 1942 levels. But the government had steadily lost support. An election in November 1946 reduced its working majority to 3 in a House of 80, so that the 4 Maori members held the balance of power.

When the war ended, there were barely suppressed demands for greater imports, for higher wages, higher guaranteed export prices and the restoration of labor legislation. In monetary terms at least, the means were available to satisfy these demands. With rising export prices and import control, London balances had accumulated, the budget was balanced and the government had ample power to expand

domestic credit. In 1936 it had nationalized the Reserve Bank. In 1945 it had taken full control of the Bank of New Zealand which did 40 per cent of the banking business of the country.

But in 1946, unlike 1935, there was full and even overfull employment of resources, including labor. A strategically placed observer compared the economy to a ship in full sail with every stitch of canvas set and very little freeboard. When Frank Langstone, the chief advocate within the Labour Party of ideas closely akin to Douglas Credit, had moved at the Party Conference in 1944 a demand that the Bank of New Zealand be nationalized, he compared his motion with Archimedes' demand for a lever to move the world, and concluded, "Here's the lever, Mr. Nash. It will make it possible for the sunshine of economic prosperity to shine in even the darkest places."

Walter Nash, the Minister of Finance into whose reluctant hands the lever was pressed, accepted but did not use it. He knew that what Archimedes had asked for was not only a lever, but a fulcrum and a place to stand on. When there are unemployed resources, as there were in 1935, credit expansion and public spending may move an economy from depression to prosperity. When resources are already strained, as they were in 1946, credit expansion exerts its effect through the price system which has nowhere to go but up.

When peace diminished the public readiness to accept sacrifices in a common cause, the government's economic policies were exposed to a crucial test. The results of that test are canvassed in the remainder of this article. Attention must first be paid to the attempt by import control and fixed export prices to insulate the national economy from fluctuations in the external market. Then the major objectives of domestic economic policy are considered in turn—the stabilization of domestic price relationships, the redistribution of income, and national economic development. To achieve these objectives reliance was placed primarily upon persuasion, with the Minister of Finance (who was also Minister of Customs and Minister of Marketing and therefore controlled both imports and the prices paid for exports) as the ultimate arbiter. Primarily he relied upon the power of the public purse to reinforce his persuasive efforts, but he could always resort to credit creation, and was under constant pressure to do so. When export prices fell in 1949 he was forced to this expedient.

III. *External Stabilization, 1946-49*

Export receipts generate a high proportion (about 25 per cent) of New Zealand's national income. A very much higher proportion (over 80 per cent) of her imports are producers' equipment, materials and

fuels. Price movements in overseas markets are therefore of great concern.

When the war ended, the woolgrowers resumed wool auctions. They had accepted government control of marketing only for the duration of the war and the bulk-purchase agreement negotiated with the British government expired with the 1945-46 season. Wool represented 30 per cent of the total value of exports, and prices rose sharply in export markets. Early in 1946 a Wool Disposal Commission had been set up to liquidate stocks accumulated (by Britain) during the war. The woolgrowers agreed to pay a levy on exports—7½ per cent of the sale value in 1946-47, 5 per cent in 1947-48 and 2½ per cent in 1948-49—in order to finance the Commission. Except for this levy the higher wool prices were paid to the growers and the government did not attempt to intercept this substantial addition to the national income.

Bulk-purchase agreements covering the exports of the other principal exports—meat, butter and cheese—had been negotiated for periods that extended beyond 1949. The Marketing Department continued to buy from the farmers all of these commodities they produced at a price fixed by the Minister. As prices rose in overseas markets and the government's receipts swelled, there was irresistible pressure from the producers for the so-called "guaranteed prices" to be raised. The government had paid off a substantial amount of long-term public debt held in Britain, as well as war advances, and had made substantial gifts to Britain. Still the export receipts were sufficient both to pay higher prices to the producers and to accumulate large reserves in the marketing accounts. The higher guaranteed prices, like the much sharper appreciation of wool prices, increased the national income.

In 1948 this expansion of purchasing power within the country was slowed temporarily, but not halted, by appreciating the currency to parity with sterling. As the opposition party, Labour had opposed depreciation in 1933, but after coming into power it had failed, until 1948, to implement its promise to bring the exchange rate back to parity with sterling. In that year it was faced with inflationary pressures beyond its control. Export prices had risen sharply and import prices also. At the price-levels current in New Zealand the currency was undervalued. By March 31, 1948, despite reductions amounting to £45 millions in the public debt held overseas, London balances had risen to £84 millions. There was strong agitation from the trade unions for increased wages and from the farmers for higher prices.

In August, before the new season's exports began, the government announced the return to sterling parity. It was well-timed and its effects were salutary. The move was not widely anticipated, so that speculation was at a mimimum. Export receipts were not greatly dimin-

ished because wool prices rose further and the new season's bulk-purchase-agreement prices were raised by 16-18 per cent. But import costs were reduced and manufacturing profits fell. The Reserve Bank was compensated by the Treasury for the loss in New Zealand currency incurred on sterling balances. The disparity created with the Australian pound was not serious because exchange control remained operative. The Customs continued to assess duties as if the Australian pound was at par, thus collecting some extra revenue and giving local industries extra protection from their nearest competitors.

Concessions had to be made also to the pent-up demand for imports in the postwar period. Behind the shelter of exchange control and war shortages a great number of local manufacturing industries had been developed. They increased the need for imported equipment and materials. After 1945 it was impossible to maintain the rigid import selection practiced during the war. Total imports in 1945 were £55.1 millions. In the next year they jumped to £71.6 millions, and in 1947 to £128.6 millions. The greater part of the increase was in equipment and materials for the new manufactures, but consumers' goods also rose from £11.5 millions to £26.8 millions between 1946 and 1947.

Stabilization is a blessed word, much used in difficult periods of fundamental economic change and therefore violent price fluctuations. But what does it mean? If it is simply a mechanism whereby export prices may be averaged over good and bad years, accepting the trend but smoothing the fluctuations in world markets, there is much to be said for it. But the smoothing tends to be combined, as it was in New Zealand, with other objectives. There is a good case not only for averaging prices to the producer, but also for compensatory public expenditure and credit expansion in bad years, balanced by retrenchment in good years. This case is blurred when such notions are added as a "reasonable standard of comfort," a reasonable remuneration based on production costs, the development of national resources, autarky, full employment, social security, and at the same time a more equitable distribution of the national income.

If all these objectives are aimed at simultaneously, as they were in New Zealand, the government must control all the elements of the external balance of payments—imports as well as exports. Full employment, interpreted to mean that hardly anyone is ever out of a job, can be maintained only by an unsatisfied demand for local production. To prevent this demand turning to imports, government must restrict imports so as to keep supply below demand. There is no alternative to complete control of external transactions. But, in addition, the government must embark upon a thoroughgoing control of the domestic economy.

In the years 1946-49, the sharp upward rise of prices in New Zealand's export markets, followed by a substantial fall in the export season 1949-50, posed difficult problems to the government's stabilization program. The currency appreciation of 1948 was well executed, but it did not do more than damp down for a brief spell the inflationary pressures on the economy. The trade unions still pressed for higher wages and the farmers for higher prices. When export prices fell in 1949-50, costs and prices were still on the upward slope. Government expenditures were rising but tax revenue was falling and sources of domestic loans were drying up. The government therefore resorted to the Reserve Bank for advances to maintain its expenditures.

In the last war years and in 1946-47 it had substantially reduced its borrowings from the banking system. It increased them by £11.5 millions in 1947-48, and decreased them slightly in the following year, only to increase them by £23.3 millions in the bad year 1949-50 when Britain suffered a severe crisis and was forced to devalue sterling. It was mainly this domestic monetary expansion to offset a fall in export receipts, followed as it was by the Korean war boom, that caused the subsequent inflation of trading bank advances in New Zealand. It was unfortunate that 1949, the last year of Labour's tenure of office, was a bad year for exports and forced resort to credit creation. The inflationary pressures thus set in motion persisted long after Labour lost the election at the end of 1949.

IV. *The Program of Domestic Stabilization*

Between 1945 and 1949, the prices of export goods rose by 47 per cent in New Zealand and more abroad. There was therefore a considerable increase in available purchasing power. Local prices rose by 22 per cent at wholesale and by only 12 per cent at retail.

When imports increased substantially in the years 1946-49, their prices were substantially higher than the levels at which prices had been stabilized during the war in New Zealand. The effect of these higher import prices was disruptive. Import prices rose by 23 per cent, even allowing for the 25 per cent appreciation of the currency. The wholesale prices of these imported goods were held to a 12 per cent increase. The strains on the domestic stabilization program imposed by these differential movements were considerable.

In these crucial postwar years, therefore, it proved impossible to insulate the local economy from the influence of the external market. Local prices rose and the attempt to regulate their rise strained the stabilization machinery to the breaking point. Apart from differential price movements, the administrative difficulties of import selection and licensing were formidable. The customs officials and ultimately the

Minister attempted "in far too great detail to determine centrally the import desires and requirements of the community."[2] Delays, uncertainties, and in some lines recurring gluts and shortages, did not encourage the public to accept the Labour argument that planning was superior to the operations of the price system.

New Zealand is a small country with a relatively simple economic structure. But the complexity of price relationships was greater than could be effectively handled by administrative regulation. There is always a tendency for planners to underestimate the subtlety of the free-market mechanism. It is not easy for regulating authorities to make decisions that do not disturb the intricate networks of relationships that in a freely operating market are adjusted by the dispersed decisions of individual producers and consumers.

Under regulation there is a hardening of group relations. Trade associations are formed and gain power, as do trade unions and farm groups. These organized groups naturally urged their claims to the very limit of their political and economic influence. Their pressures put the Minister in the position of an economic arbiter, at the same time as he was carrying an immense burden of detailed administrative responsibility. His considerable powers of exposition and persuasion were used to the full, but they did not prevent the stabilization mechanisms from deteriorating into a leapfrogging competition among farmers, merchants, manufacturers, and trade unionists for higher prices and wages.

What broke the system finally, more than any other single factor, was organized trade union pressure, through the Arbitration Court and by strike threats, for higher wage levels. Nominal wage rates crept up and hours were reduced. Until 1950 the Court was limited in its awards by the stabilization legislation of 1942. In a condition of full employment, however, earnings above the award rate could be obtained, especially by the strongly organized industrial unions. Strikes became more frequent from 1946 onward. In general the Labour government was conciliatory in its attitude towards the unions. The farmers and the floating voters in the towns chafed under this apparent deference to organized unionism.

The stabilization of price relationships within the domestic economy had been formalized by legislation in 1942 which froze rents, wages, public utility charges and prices of a selected list of necessities. In order to keep stable the relationships thus established when external prices were rising and income was expanding, the government resorted to a combination of regulation and persuasion, supplemented by sub-

[2] R. F. Wilson, "Import Control in New Zealand," *Econ. Record*, June 1950, XXVI, 55-56.

sidies. Too heavy and detailed a burden was thrown on ministers and especially the Minister of Finance. The departments through which the regulations were administered had not been recruited for such tasks. There was no economic general staff and no plan buttressed by detailed statistics and market surveys. It is by no means clear that such a staff could have been more successful, but in default of econometric calculations decisions were made by ministerial judgment, balancing economic considerations and political pressures.

It was asking too much of a democracy to expect that public opinion would accept as disinterested even the wisest judgment of a minister under constant pressure from his own party and its supporters. The feeling grew that he was the prisoner of the partisans of monetary expansion and of the militant trade unions. Whether this feeling was justified or not, it revealed the essential weakness of the attempt in a democracy to control by persuasion. The ultimate court of appeal is public opinion and in the 1949 election it rendered an adverse verdict.

There were of course many factors contributing to the electorate's loss of confidence in the Labour government. Fear of inflation was one of them. The struggle among contending segments of the economy for an increased share of the national income, as well as resentment against the growing network of controls and general discontent with a government that had been in office for fourteen years were also evident.

Much of the Labour program commanded broad public support. This was particularly true of the social security legislation. There had been little effective criticism either of the restoration of employment, wages and working conditions after the depression, or of the wholehearted war effort. But this did not mean that the electorate had accepted the socialist philosophy. There was much latent support for the opinion early expressed by Souter that "it is not the duty of the State to provide the whole of New Zealand with a high standard of living."[3] Opinions might differ as to the economic role of the state in an ideal society; but many people were alarmed by the realization that the Labour program, as it developed, was based on "a philosophy which is hardly consistent with capitalist democracy."[4]

Such alarm was reinforced by the feeling in many quarters that Labour had temporized with the Communist or party-line leadership of some trade unions and civil service associations. After the National government had taken strong steps to break the power of this leadership in a bitter series of waterfront and other disturbances in early

[3] R. W. Souter, "How Do We Want the New Zealand Economy to Behave?," *Econ. Record,* Suppl.; Oct. 1939, XV, 7-16.

[4] H. Belshaw, "Guaranteed Prices for New Zealand Exports," *Econ. Record,* Dec. 1937, XIII, 168-88.

1951, it appealed to the country and was returned with an increased majority, which seemed to indicate that public opinion was against the Labour Party's attitude in these matters.

In fact the Labour government made no attempt to carry the socialist philosophy to its logical conclusion. Its left-wing minority had prophesied disaster if their program of a completely planned economy based on costless credit were not adopted. This was not done. Interest was not abolished and neither the Reserve Bank nor the Bank of New Zealand was used to any great extent as a means of creating credit. Yet public opinion became increasingly conscious of the far-reaching powers vested in ministers to control and regulate credit, prices and the economy in general. Restiveness on this account played a role in the ultimate rejection of this part of Labour's program. It is natural for a democracy to be fearful of concentrations of centralized power, however capable and benevolent the holders of that power may be.

V. *Redistribution of Income*

In the first prewar years of Labour's tenure, 1936-38, a substantial redistribution of income was carried through. This was primarily a correction of the inequities resulting from the previous government's attempt to cope with depression by deflationary policies that went too far and were continued too long. Wages were raised, hours reduced, and social security extended.

Between 1938 and 1942 the lower-income groups lost ground again and the stabilization arrangements after 1942 did little more than enable them to hold their own. They lost ground again during the demobilization period after the war.

The net result of these changes, as shown in Table I, was that in

TABLE I.—DISTRIBUTION OF PRIVATE INCOME IN NEW ZEALAND, 1938–1949[a]

(percentages)

	1938–39	1943–44	1944–45	1945–46	1946–47	1947–48	1948–49	1949–50
Salary and wage payments	55.6	42.4	43.3	44.9	47.0	47.2	49.1	47.7
Social security benefits	3.9	4.8	5.2	5.8	8.8	8.5	8.5	8.1
Armed Forces pay	0.4	17.5	14.2	11.1	2.1	1.4	0.9	0.9
Rental value: Owner-occupied houses	3.1	2.5	2.6	2.5	2.3	2.2	2.3	2.1
Other personal income	27.2	21.8	23.5	24.1	27.7	28.9	28.9	30.2
Company income	9.8	11.0	11.2	11.6	12.1	11.8	10.3	11.0
	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

[a] *New Zealand Official Year Book* (1954), p. 664, and "Report on the Official Estimates of National Income and Sector Accounts for the year 1955-6."

1949, so far from salaries and wages representing a larger share of national income, they were a smaller percentage than they had been in 1938. At no time did they regain their prewar share. It is true that both nominal and real wages increased after the war, but the increase was less than that of incomes of other economic groups. It could be argued that these figures prove only that the farmer (and other producers) got more, not that the worker got less. But this does not alter the fact that the worker failed to get his proportionate share of the postwar prosperity.

It could also be argued that most of what was lost in salaries and wages was gained in social security benefits. These covered the whole population and were financed mainly by a flat tax on income. They therefore entailed some redistribution, but the statistical evidence is that the wage-earner did not gain a greater share of the national income. Calculations of income distribution in the United States are not strictly comparable, but the wartime decline in the share of wages was less and the postwar recovery greater than in New Zealand. The percentage share of wages and salaries (private, government civilian, and other, but not military) in the United States was 63.5 in 1939, 53.8 in 1945 and 61.6 in 1949.[5]

After price stabilization was effectively organized in 1942, the Arbitration Court proved to be "a good guardian of real wages." But a carefully documented study, published in 1951, concluded that it could not function successfully to redistribute income.[6] Thus it is not surprising that the stronger and more militant unions resorted to direct wage bargaining supported by strike threats. Stabilization and income redistribution had not proved compatible. It was ironical that partiality towards organized unionism should have been one of the causes of the Labour government's defeat in 1949 when in fact the share of wages in the national income had fallen substantially from its prewar peak. The more militant workers were not content with stabilized wages which in fact meant a smaller share of an expanding national income. They had a good case, but the methods they used to advance their case irritated and finally alienated public opinion.

VI. *National Economic Development*

There is no doubt that the extensive public works undertaken by the Labour government were effective in developing the country. The construction of roads, railways and hydroelectric installations was

[5] *Cf. Surv. Curr. Bus.: Suppl.*, "National Income, 1954," pp. 162-63.

[6] J. V. T. Baker and H. G. Lang, "National Income and Wages Policy: the New Zealand Picture," *Econ. Record,* Dec. 1951, XXVII, 190-206.

pushed vigorously. There is no evidence that engineers and architects working as public servants were less efficient or imaginative than they might have been in a system of private enterprise. The public accounts were carefully kept and there was never any suggestion of corrupt practices. The Labour administration was thoroughly honest, as indeed other administrations have been. The standard of public morality is high in New Zealand. The country is small, there is full publicity and rigorous audit. It is true that, as the public sector expanded, the accounts grew more complex so that it became difficult to assess the financial situation as a whole. There were criticisms of the way the budget was presented to Parliament.[7] The difficulty of understanding the full implications of the annual financial statements added to the uneasiness of those who were critical of the great powers vested in ministers and especially in the Minister of Finance; but there was never any suggestion that those powers were improperly used.

The substantial question is whether the program of construction went too fast and too far. It helped to maintain full employment and to generate the inflationary pressures associated with it. In an inflationary spiral, however mild, there are always shortages of equipment and power, so that there is always demand for more construction. Much of this demand sprang from the development of secondary industries behind exchange control. Some of it was associated with immigration, which in its turn was designed to meet a shortage of manpower. As long as export prices kept on rising, the costs of such rapid development were bearable; but the situation was precariously dependent upon the maintenance of prosperity in overseas markets.

When the Labour government took office it was not clear that New Zealand could continue to enjoy free access to a constantly expanding market for its exports of food and raw materials. The United Kingdom in 1934 had actually imposed restrictions on meat imports and there was talk of a quota on butter. A strong argument could therefore be made for the promotion of secondary industries to provide employment for a growing population.

The fears of shrinking markets did not materialize at the close of the war. On the contrary there was strong demand at sharply rising prices for all the wool, meat, butter and cheese that New Zealand could produce. The trend was in striking contrast with the uncertainties and crises that followed the first world war. Between 1945 and 1949 the export prices of pastoral products rose by 50 per cent, while the quantity of wool exported more than doubled and that of butter increased by 50 per cent. Table II gives ample evidence of the strength

[7] C. G. F. Simkin, "Budgetary Reform in New Zealand," *Econ. Record,* June 1942, XVIII, 16-30.

of overseas markets. Not until 1957 was there a sharp fall in butter prices, mainly as the result of subsidized milk production in the United Kingdom.

The soundness of the program for developing secondary industries, and to some extent that of the public works necessary to promote them, must be appraised against this background of a favorable export market. More than a decade has passed since the war ended. No financial crises comparable with those of 1919-20 and 1929-33 have occurred. More flexible monetary policies in the major industrial countries have indeed supported high and rising price-levels. Periodic strains on the British economy and the subsidizing of United States surpluses have had unfavorable effects; but the British market has continued to absorb the bulk of New Zealand's exports. Population is growing rapidly all over the world and the production of food barely keeps pace with the increase. Animal products are in particularly short supply. Many food-producing areas are now engaged in programs of industrialization and at the same time their standards of living are rising rapidly so that export surpluses diminish. New Zealand has gained substantially from these developments and seems likely to gain more in the foreseeable future. In the circumstances there does not seem to be any compelling reason why it should strive to expand its secondary industries when they are not competitive with imported goods. The rapidity of their expansion has strained the power resources of the country and necessitated rapid extension of transport as well as power. It is not clear that this development maximizes national income.

TABLE II.—VALUE OF PRINCIPAL EXPORTS, 1945–1955

(N.Z. millions)

Year	Wool	Meat	Butter	Cheese	Total Exports
1945	12.7	17.6	19.3	9.5	81.6
1946	26.6	23.2	19.8	8.4	101.3
1947	32.0	29.4	28.8	11.6	129.4
1948	44.5	27.6	33.8	11.2	147.8
1949	46.6	27.2	35.4	12.7	147.3
1950	74.7	28.6	35.6	14.5	183.8
1951	128.2	25.4	41.4	16.7	248.1
1952	82.0	40.5	55.9	15.5	240.6
1953	84.3	39.9	51.5	18.4	235.9
1954	88.4	51.9	44.8	16.4	244.4
1955	93.8	68.2	50.7	13.4	256.7

The grassland industries supply 95 per cent of New Zealand's exports. Equipment, materials and fuel for the secondary industries account for more than 80 per cent of the imports. It is therefore dis-

quieting to find that during the period of planned development, the rate of increase in pastoral productivity declined. In part this was the result of war shortages of fertilizers, equipment and manpower, but it continued and was indeed most marked in the immediate postwar period. Table III indicates the quinquennial percentage rates of increase in the animal units and the total farm production, based on units of protein equivalents. This is a measure of the volume of production, the significance of which was masked by sharply rising prices.

TABLE III.—QUINQUENNIAL PERCENTAGE INCREASES IN FARM PRODUCTION[a]

Period	Livestock Units[a]	Total Farm Production
1915–19 to 1920–24	5	25
1920–24 to 1925–29	13	12
1925–29 to 1930–34	13	25
1930–34 to 1935–39	8	9
1935–39 to 1940–44	3	8
1940–44 to 1945–49	2	1

[a] Equivalent of 1 cow in milk = 6 breeding ewes = 8 dry sheep = $1\frac{1}{4}$ beef breeding cows and heifers over two years = 2 other cattle.

Sources: H. D. Orchiston, "Fertilisers, Lime and Farm Production in New Zealand since 1900," Canterbury Chamber of Commerce Agric. Bull., No. 316, Nov. 1955. *Cf.* also E. J. Fawcett, "Some Aspects of the Future of Agriculture in New Zealand," *Proceedings of the Ruakura Farmers' Conference Week* 1954 (Wellington, 1954) pp. 83–98.

Such a slackening in the rate of increase in the main exporting industries was a heavy price to pay for the development of protected secondary industries. Industrialization is not easy in New Zealand. The country is singularly deficient in minerals and despite diligent search only a trickle of petroleum has been found. There are limited deposits of bituminous coal of coking quality, but they are expensive to mine and transport. Expensive tests have shown that ironsands can be smelted by electric furnaces using sub-bituminous coal. In 1937 the Labour government passed an Iron and Steel Industry Act; but the production of iron ore in 1952 was only 1,823 tons. New Zealand could, at a price, produce steel. But the real questions involved are economic rather than technical. Practical experience, as well as economic theory, suggests that the national income will be higher if New Zealand exports the produce of its magnificient pastures and imports its steel, rather than burdening its efficient exporting industries with the high cost of supporting local manufacture.

Not even the textile industries are favorably placed for development. New Zealand produces wool but only 6 per cent is manufactured locally. The woolen industry has grown up in small and widely separated units. Specialization has not been achieved and the industry has

never been able to produce on a large scale or compete in export markets. There is no cotton. The small size of the market makes it cheaper to import than to manufacture synthetic fibers. Numerous clothing and footwear industries have been established, but despite protection their profits do not compare favorably with those of other industries.[8]

The secondary development that sheltered behind exchange control and import selection was small scale. Of the 8,512 establishments classified as factories, 3,443 employed less than 6 workers and another 2,016 employed from 6 to 10. It is doubtful whether the multiplication of such workshops can be claimed as economic development, particularly when their creation was accompanied by a slackening in the rate of increase of the strong exporting industries.

VII. *Conclusion*

Any general statement concerning the fourteen years of Labour government would be presumptuous since it could only record a personal judgment. Much of the Labour program has been accepted. The social security legislation, the regulation of wages and working conditions, the conduct of state enterprises and the reliance upon local rather than overseas borrowing met with general approval. State intervention is not new in New Zealand, though the pattern of production remains one of private enterprise, particularly in the basic pastoral industries, but also in manufactures and services.

In 1949 the voters rejected the further extension of intervention based on socialist principles. There has since been some loosening of controls and devolution of ministerial powers. The only major reversal of state ownership has been in housing. The Reserve Bank and the Bank of New Zealand have not been restored to private ownership. The former has achieved a somewhat greater measure of independence and the latter has functioned very much as it did under private ownership. The broadcasting system, domestic airways, and some minor industries are still operated as state enterprises. The marketing of exports has been returned to the producers. Lending for the purchase of land and houses is still largely a government function. Much of the Labour program remains in effect though its administration has been modified.

What was rejected in 1949 was the ultimate goal of socialization based upon domestic monetary expansion. As before in their history,

[8] G. C. Billing, "Industrial Organization in New Zealand," *Econ. Record*, June 1936, XII, 47-56 and "Size and Efficiency in New Zealand Industry," *Econ. Record*, June 1937, XIII, 58-65. "The Industrial Pattern and New Zealand's Future," *Econ. Jour.*, Mar. 1957, LXVII, 65-73.

New Zealanders took a pragmatic attitude. They were prepared to use the machinery of government to achieve specific economic objectives; but they were not ready to adopt a doctrinaire position and push their experiments beyond the limits of expediency. In particular they abandoned as unworkable the theory that the whole economy could be regulated by ministerial discretion.

EFFECTS OF CONSUMER ATTITUDES ON PURCHASES

By EVA MUELLER*

In recent years the consumer has begun to earn a reputation with business cycle analysts and economists for being unpredictable or temperamental in his spending behavior.[1] We have witnessed a number of fluctuations in consumer spending—some of considerable importance —which could not be explained by the level of, or changes in, consumer incomes. One of the most striking instances was the recession in discretionary consumer spending in 1951, at a time when personal incomes were rising.[2] Another was the sharp increase in the level of consumer spending in the winter of 1954-55 which exceeded the increase in personal income occurring at that same time. In the short run at least, autonomous variations in consumer spending do occur. The Economic Behavior Program of the Survey Research Center is engaged in research based on the proposition that measurements of consumer attitudes—of people's optimism and confidence—can help to explain and predict variations in consumer spending which cannot be explained by income changes.[3]

This proposition can be tested at two levels, the aggregative and the individual. "Aggregative tests" start with the construction of time series from the expressed attitudes of representative samples of the American population. These attitudinal time series may then be checked against time series for aggregate consumer purchases in the United States, or even purchases of specific goods. For example, if

* The author, who is assistant program director at the Survey Research Center, University of Michigan, is greatly indebted to George Katona for his advice throughout all phases of this study as well as for many helpful ideas. She also wishes to express her gratitude to Ralph Bristol who supervised the statistical analysis and to Robert Hsieh who participated in it. The collection of the data as well as the analysis reported here were made possible by a grant from the Ford Foundation to the Survey Research Center for studies of the "Origin and Effects of Economic Attitudes." Several further publications will be based on these studies.

[1] See for example the *Economic Report of the President* transmitted to the Congress, January 24, 1956, pp. 49 and 107.

[2] "Discretionary" consumer spending denotes spending on such items as consumer durable goods, vacations, and luxuries. Expenditures may be discretionary either because they are for nonessentials or because they are postponable (*i.e.*, replacement of durable goods).

[3] Relevant here are attitudes and opinions which are responsive to short-run changes in the economic environment rather than personality traits or attitudes evolved over a long period of time.

the attitudes of the American people were more optimistic at time-point I than at time-point II, is it true that the aggregate ratio of consumer purchases to disposable income was higher following time-point I than following II? Tests at the individual level require interviewing the same people at least twice in succession. Such tests tell us whether a group of individuals who were optimistic at time-point I were more likely to make major expenditures following time-point I than a group who were more pessimistic. This we shall call the "reinterview test."

Evidence of the influence of consumer attitudes on spending, derived from the aggregative test, has been presented in several previous publications.[4] It has been shown that consumers' attitudes and their rate of discretionary spending exhibit similar movements over time. At certain times there have also been indications that changes in consumer attitudes lead changes in consumer spending.

An extensive reinterview test of the influence of consumer attitudes and expectations on consumer spending was initiated in June 1954, when a representative cross-section of 1,150 urban families in all parts of the country was interviewed for the first time. Subsequently 3 additional interviews were taken with these families in December 1954, June 1955, and December 1955. In all, 4 complete interviews were obtained from 800 families at half-year intervals. This material enables us to relate initial attitudes and attitude change to subsequent spending and saving patterns of the same families, holding constant a number of other variables.

It should be clear at the outset that one should not expect the reinterview test to show more than a marginal effect of attitudes on purchases.[5] First, at the individual level the decision to spend is governed by a multiplicity of factors—age, family status, home ownership, place of residence, breakdown of old durable goods, personality traits, income level and income change—to mention only a few. Some of these cancel out in the aggregate (their distribution in the entire population is almost constant over considerable periods), but they have a pronounced impact on individual decisions. Second, when attitudinal measures are used to classify people into groups of optimists and pessimists, it is assumed that these measures permit us to make interpersonal comparisons. In fact, however, these classifications are only approximately accurate. This problem does not arise in connection with the aggregative test, where comparisons are made between

[4] See G. Katona and E. Mueller, *Consumer Attitudes and Demand, 1950-52* (Survey Research Center, University of Michigan, 1953); and by the same authors *Consumer Expectations, 1953-56* (Survey Research Center, University of Michigan, 1956).

[5] The limitations of the reinterview test have been discussed by G. Katona in "Federal Reserve Board Committee Reports on Consumer Expectations and Savings Statistics," *Rev. Econ. Stat.*, Feb. 1957, XXXIX, 40-45.

answers to identical questions given by large representative samples of the population at two points of time, rather than between individuals with different expressed attitudes.

I. *Analysis Plan*

The dependent variable in this investigation is the *number* of major expenditures made by the family rather than dollar amounts spent. This choice was made in part because number of purchases could be determined readily for half-year periods for a comprehensive list of items, while dollar figures were collected only on a calendar year basis and for a somewhat smaller number of expenditures. However there is also a conceptual basis for studying number of major purchases. It might be assumed that the state of consumer confidence influences primarily the decision to go ahead with a desired purchase or to postpone it. Any further influence it exerts on the amount spent (buying a cheaper or a more expensive TV set; a new or used car) may be of lesser importance.

Included in "number of purchases" are expenditures for cars, large household goods, additions or repairs to the home, and major nonhousehold expenditures (for power lawnmowers, musical instruments, speed boats, typewriters, etc.). Excluded are medical and educational expenditures—which are largely nondiscretionary—and vacations—which are strongly seasonal and which do not always involve a major expense.[6]

The major independent variables are two composite measures of consumer attitudes. There are strong reasons to believe that indexes based on several attitudes are more meaningful and bear a more stable relationship to behavior than do answers to single attitudinal questions. This is the case in part because answers to individual questions are subject to some margin of error. People with the same expectations may appear to give different answers, according to their mood, their understanding of the question, their mode of expression, and the interviewer's interpretation of the answer. When answers to several questions are combined the impact of such misclassification is greatly reduced. Second, consumer buying inclinations are likely to depend on a variety of attitudes—some concerned with present conditions, others

[6] Specifically, five categories of expenditures were counted: (1) buying one car, (2) buying a second or third car, (3) buying one or more major household goods, (4) making major repairs or improvements on one's home or apartment, (5) making one or more major nonhousehold expenditures (as defined above). For each family the number of categories which applied in each half-year was computed. Thus the maximum number that could be obtained in any half-year was five, in an entire year 10. Actually, no family scored more than 4 for a half-year, nor more than 6 for a whole year. The average number of purchases per family in our urban sample was 1.52 for the year June 1954-June 1955, and 1.02 for the half-year June-December 1955.

with expectations for the future; some with personal finances, others with the national economic outlook or with buying conditions. At any one time, some of these attitudes may make for spending, while others inhibit spending. Gestalt psychology tells us that the meaning and function of any part of a psychological field depends on the whole to which it belongs. It is likely therefore that composite measures of attitudes have a stronger and more stable relationship to behavior than have any of their components.

Our primary measure in this study is an index of consumer attitudes constructed from answers to six attitudinal questions: (1) whether the family is better or worse off than a year earlier, (2) its personal financial expectations for the coming year, (3) its one-year expectations regarding business conditions, (4) its longer-range economic outlook, (5) its appraisal of buying conditions for household goods and clothing, (6) price expectations. Tentatively, the six components of the index have been given equal weights.[7]

A second measure of attitudes toward spending is an index of buying intentions. Data have been collected on expressed intentions to buy houses, cars, durable household goods, to make home improvements or repairs, and to make major nondurable goods expenditures. Only plans which respondents rated as having at least a fair chance of fulfillment were considered. Each family was scored 0 = no such buying plan, 1 = any one type of plan, or 2 = two or more categories of plans. This measure is an indicator of willingness to spend, rather than a predictor of specific purchases. It is presented and tested here for the first time.

Two questions may be asked about the relation between attitudes and spending behavior: To what extent do consumer attitudes influence spending? And second, how useful are data on consumer attitudes and buying intentions for forecasting consumer demand? Although these questions are closely related, they must be approached somewhat differently. When we are testing the forecasting value of attitudinal data, we must work with variables which can be known in advance, such as past income and attitudes at the beginning of the forecasting period. We must disregard changes which occur during the forecasting period—either in people's financial situation or in their attitudes. Previous analyses of the relation of consumer attitudes to purchases have been concerned with forecasting value only.[8] The present study, on the other hand, is concerned also with the influence of consumer attitudes. This means that we may use variables in this part of our

[7] An index including these six components has been computed and published by the Survey Research Center over the past four years. The index is described in detail in Katona and Mueller, *Consumer Expectations, 1953-56, op. cit.*, pp. 91-105.

[8] See L. R. Klein and J. B. Lansing, "Decisions to Purchase Consumer Durable Goods," *Jour. Marketing*, Oct. 1955, XX, 109-32.

analysis which can be known only *ex post*, such as current income and the attitude change during the period under study. We shall use the two approaches in turn, starting with the influence of attitudes and then turning to the forecasting value of the index of consumer attitudes and the index of buying intentions. The analysis covers two periods for which data have been collected: the year June 1954-June 1955, and the half-year June-December 1955.

II. *The Influence of Consumer Attitudes, June 1954-June 1955*

The reinterview test of the influence of consumer attitudes on purchases consists of classifying individuals according to attitudes and comparing purchases made by the various attitude groups. Since attitude change occurs rather frequently we shall take account of initial attitudes in June 1954 as well as of attitude change during the following year, the period under study.[9] The index of consumer attitudes is used to distinguish between people who were initially *optimists* (scoring 10-12 on a 12-point attitude scale), *medium* (scoring 7-9), and *pessimists* (scoring 0-6).[10] It is also used to subclassify these groups according to subsequent attitude change—distinguishing between those whose attitudes remained "the same" (*i.e.*, changed by one point or less), "improved" (by two or more points), and "deteriorated" (by two points or more). The following tabulation shows the distribution of attitude scores in June 1954 and June 1955:

INDEX OF CONSUMER ATTITUDES

	June 1954 (per cent)	June 1955 (per cent)
Optimistic (10–12)	31	43
Medium (7–9)	44	47
Pessimistic (0–6)	25	10
All	100	100
Number of cases	674	674

The method of analysis consists of two stages. In the first stage the income effect is "eliminated." This is necessary because *optimists* tend to have higher incomes than *pessimists*. The average number of

[9] Another study by George Katona dealing specifically with the frequency of attitude change and its determinants will appear in *Psychological Monographs*.

[10] With optimistic replies scored as 2, medium (same, pro-con) replies as 1, and pessimistic replies as 0, a score has been computed for each respondent from his answers to the 6 questions. These scores can range from 0 for extreme pessimism to 12 for extreme optimism. People who repeatedly gave "I don't know" or similar answers have been excluded from this analysis. The remaining expressions of uncertainty were scored 1.

purchases is determined for each of nine income groups. This gives us an "expected" number of purchases for each family based on its current income. We also know from the reinterview the actual number of purchases made by each family. In the second stage the ratio of actual to expected purchases is compared for our various attitude groups, using a simple analysis of variance. For example, the average number of purchases among families with incomes from $4,000-$5,000 was 1.5 in the year under study. A family with an income of $4,500 and one purchase would therefore have a ratio of actual to expected purchases of .67. After adding up actual and expected purchases for all the families within any one attitude group, we compute the ratio of actual to expected purchases. In the tables which follow such ratios are presented for groups with differing attitudes. The method used in this section is in a sense a very rigorous test of the influence of attitudes on purchases, since it gives priority to income in the analysis. It determines, in fact, how much consumer attitudes contribute toward the explanation of purchase decisions over and above the explanation provided by income.

We begin by considering the entire year June 1954-June 1955. Table I illustrates our method step-by-step. All families have been classified according to their initial attitudes in June 1954 and according to attitude change between June 1954 and June 1955. Theoretically 9 attitude classifications are possible. By definition, however, 2 could occur only infrequently: being initially optimistic and improving (14 cases) and being initially pessimistic and deteriorating (5 cases). These cells have therefore been omitted. This leaves a 7-group classification. Part A of Table I shows the average number of purchases per family made between June 1954 and June 1955 by each of these 7 attitude groups. The table shows large differences in purchases between these attitude groups.

Since we know that *optimists* tend to have higher incomes than *pessimists,* Part B of Table I shows the average number of purchases which might be expected on the basis of the income distribution within each of the 7 groups. Clearly the intergroup differences in "expected" purchases are smaller than the differences in actual purchases, although they are in the same direction.

Finally, Part C presents ratios of actual to expected purchases for each of the 7 attitude groups. These ratios are measures of the influence of attitudes on purchases after elimination of the income effect.[11] In every column the *medium* group had lower ratios than the

[11] Eliminating the income effect also serves to eliminate most of the effect of age on purchases. For data on the intercorrelations between income, attitudes, and other variables see Table V in Section III.

TABLE I.—INDEX OF CONSUMER ATTITUDES: INITIAL ATTITUDES, ATTITUDE CHANGE, AND NUMBER OF PURCHASES, JUNE 1954–JUNE 1955

Initial Attitude June 1954	Attitude Change, June 1954–June 1955			
A. Actual Average Number of Purchases per Family				
	Improved	Same	Deteriorated	All
Optimist		1.91	1.64	1.83 (209)
Medium	1.80	1.48	1.23[a]	1.59 (295)
Pessimist	1.27	.90[a]		1.21 (170)
All[b]	1.52 (269)	1.61 (320)	1.53 (85)	(674)
B. Expected Average Number of Purchases per Family[c]				
	Improved	Same	Deteriorated	All
Optimist		1.75	1.62	1.71
Medium	1.60	1.55	1.47[a]	1.56
Pessimist	1.41	1.37[a]		1.40
All	1.50	1.62	1.58	
C. Ratio of Actual to Expected Purchases[d]				
	Improved	Same	Deteriorated	All
Optimist		1.09	1.01	1.07
Medium	1.13	.96	.84[a]	1.02
Pessimist	.90	.65[a]		.86
All	1.01	.99	.97	

[a] Less than 35 cases.

[b] Numbers in parentheses indicate number of cases in each row and column. These numbers are the same for all three parts of Table I as well as for Table III.

[c] Expected number of purchases is calculated for each cell on the basis of its income distribution; *i.e.*, observed ave. no. of purchases within each of 9 income groups weighted by income distribution prevailing within each of the 7 attitude groups.

[d] The differences in this 7-way classification are significant at the 2½ per cent level. The significance tests in this section consist of F-ratios based on a one-way analysis of variance. Actually, the variable employed in the significance tests was the residual difference, *i.e.*, observed purchases minus expected purchases, rather than the ratio of these. Given over 650 cases, the fact that the sample was clustered has practically no effect on this significance test.

optimists; and the *pessimists* had lower ratios still. Similarly in each row the groups whose attitudes improved made more purchases (relative to what might have been expected on the basis of their incomes) than the group with unchanged attitudes; and that group in turn made more purchases than the group whose attitudes changed for the worse. Thus it appears that both initial attitudes in June 1954 and attitude change during June 1954-June 1955 had an influence on purchases during that period.

Instead of examining the relation of initial attitudes and attitude change to purchases we may consider initial attitudes and final attitudes in relation to purchases. This second principle of classification is used in Table II, where classification is by index-score brackets at the beginning and end of the year. Particularly interesting in Table II are the pronounced differences between the people who were *optimists* at both dates, *medium* at both dates, and *pessimists* at both dates. On the whole, the results obtained in Tables I and II are similar. The greatest differences appear in the third column of the two tables. The ratio of actual to expected purchases is lower for the *pessimists* than for those whose attitudes deteriorated. The explanation lies in the fact that in a period when optimism prevails, deterioration very often represents a change from *optimist* to *medium,* rather than to *pessimist.* The tables which follow are confined to the attitude-change classification.

TABLE II.—INDEX OF CONSUMER ATTITUDES: INITIAL ATTITUDES, FINAL ATTITUDES AND NUMBER OF PURCHASES, JUNE 1954–JUNE 1955[a]

(Ratio of actual to expected purchases within each attitude group[b])

Initial Attitude June 1954	Final Attitude, June 1955			
	Optimist	Medium	Pessimist	All
Optimist	1.08	1.09	.74	1.07 (209)
Medium	1.07	.99	.85	1.02 (295)
Pessimist	.92	.88	.73	.86 (170)
All	1.06 (292)	.99 (317)	.78 (65)	(674)

[a] F ratio for this 9-way classification is 1.33. Required for significance at 10 per cent level: 1.67; at 25 per cent level: 1.28.

[b] Figures within cells represent ratio of actual to "expected" number of purchases in the 12 months June 1954–June 1955. "Expected" number of purchases are calculated separately for each cell on the basis of its income distribution. Numbers in parentheses indicate number of cases in each row and column.

We shall now examine the purchase ratios in Table I separately for each half-year period: June-December 1954 and the first half of 1955. Table III shows the relation between actual and expected purchases, in both the first and the second half-year period, for 7 groups classified according to initial attitudes in June 1954 and attitude change during

TABLE III.—INDEX OF CONSUMER ATTITUDES: INITIAL ATTITUDES, ATTITUDE CHANGE, AND NUMBER OF PURCHASES BY HALF-YEAR PERIODS[a]

Initial Attitude June 1954	Attitude Change, June 1954–June 1955			
A. Ratio of Actual to Expected Purchases within Attitude Groups, Second Half of 1954[b]				
	Improved	Same	Deteriorated	All
Optimist		1.17	1.09	1.15
Medium	1.04	.90	.82[d]	.95
Pessimist	.91	.76[d]		.88
All	.97	1.00	1.01	
B. Ratio of Actual to Expected Purchases within Attitude Groups, First Half of 1955[c]				
	Improved	Same	Deteriorated	All
Optimist		1.00	.89	.97
Medium	1.23	1.04	.85[d]	1.10
Pessimist	.89	.48[d]		.82
All	1.05	.97	.88	

[a] Figures within cells represent ratios of actual to expected number of purchases in each of two half-year periods. Expected number of purchases are calculated separately for each cell on the basis of its income distribution.

[b] Differences in this 7-way classification are significant at 5 per cent level. F-ratio: 2.13 (2.10 at 5 per cent level).

[c] Differences in this 7-way classification are significant only at 10 per cent level. F-ratio: 1.89 (1.77 at 10 per cent level).

[d] Less than 35 cases.

the following 12 months. In general, the influence of initial attitudes as well as of attitude change is clearly evident for both half-years. These two influences in turn will now be examined more closely.

The right-hand columns in Table III (*All*) show the ratio of actual to expected purchases by initial attitude groups, irrespective of later attitude change. In the first half-year (June-December 1954) initial attitudes appear to have a pronounced effect on subsequent purchases.

A variance analysis of these differences shows them to be significant at better than the 2½ per cent level. In the second half-year the group whose attitudes in June 1954 were *medium* had a higher actual/expected purchases ratio than either the *optimists* or the *pessimists;* but the observed differences between the 3 groups were not statistically significant. That is, there was little carry-over of the effect of June 1954 attitudes to purchases beyond December 1954. A further check was made by relating June 1954 attitudes to purchases in the third half-year period (June-December 1955). Again no significant differences emerged.

TABLE IV.—INDEX OF CONSUMER ATTITUDES: ATTITUDE CHANGE, JUNE 1954–JUNE 1955, RELATED TO NUMBER OF PURCHASES IN THE SECOND HALF OF 1954 AND IN THE FIRST HALF OF 1955

	Attitude Change, June 1954–June 1955		
	Improved	Same	Deteriorated
Purchases June 1954–December 1954:			
Actual[a]	.88	.99	.96
Expected[b]	.85	1.00	1.01
Ratio of Actual to Expected[c]	1.04	.99	.95
Purchases December 1954–June 1955:			
Actual[a]	.65	.64	.55
Expected[b]	.59	.67	.63
Ratio of Actual to Expected[d]	1.11	.95	.87
Number of cases	269	320	85

[a] Observed average number of purchases per family.
[b] Expected on the basis of income distribution and initial attitudes within each of 3 attitude change groups.
[c] Differences are not statistically significant.
[d] F-ratio = 1.74. Required for significance at 10 per cent level: 2.30; at 25 per cent level: 1.39.

We may now consider separately the effect of attitude *change* during the year under study. Among the people whose attitudes improved there was a disproportionate number of initial pessimists, and among those whose attitudes deteriorated initial optimism was relatively frequent. The two bottom rows in Table III A and B (*All*) therefore understate the impact of attitude change. To isolate the net effect of attitude change on purchases, initial attitudes must be held constant. Accordingly, in Table IV "expected" purchases is a somewhat different concept than in Tables I-III. The average number of purchases was computed for each income group within the three initial attitude groups. "Expected" purchases in Table IV thus take account of both income and initial attitudes.

Undoubtedly people whose final attitudes differed from their initial attitudes changed at different times during the year. Probably some

changed soon after the initial interview and many more as the year progressed. One therefore would expect a stronger relationship of attitude change to purchases in the second half-year than in the first half-year. The data in Table IV bear this out. For the first half-year the relationships are not sufficiently strong to be statistically significant, although they are in the expected direction. For the second half-year there are at least 3 chances in 4 that the three groups differ with regard to number of purchases.

We may conclude that during the year June 1954-June 1955 consumer attitudes did exert a significant influence on spending decisions. Previous analysis of Survey Research Center data designed to test the influence of consumer attitudes at the individual level considered only initial attitudes and their effect on spending over the following 12 months. It now appears that we should regard the influence of a given set of attitudes as extending primarily over the half-year preceding and the half-year following the measurement. It also appears that the full impact of the state of consumer confidence becomes apparent only when account is taken of attitude change as well as initial attitudes. This must be particularly true if the period under consideration is one of extensive attitude change. The year from June 1954 to June 1955 was characterized by a marked growth in consumer optimism. We find that this change was one of the determinants of consumer spending in that year.

The finding that, at the individual level, attitude change is related to purchases is of particular importance. For in the use of attitudinal data in business-cycle analysis it is assumed that there is a relationship between *changes* in attitudes and *changes* in the rate of spending. At the aggregative level such a relationship has been found to exist previously; at the individual level it has been demonstrated here for the first time.

III. *The Predictive Value of Data on Consumer Attitudes, June 1954-December 1954*

Although we shall now speak of forecasting, this is not forecasting in the aggregative sense. Rather, we wish to determine whether groups of consumers who differ with respect to certain initial variables differ also with respect to later purchases. Some variables which, at the individual level, show a decided impact on spending nevertheless may not be useful for aggregative forecasting. These are the variables whose distribution in the entire population is nearly constant over considerable periods of time, for example, age. In more general terms, the predictive value of a variable for an aggregative forecast depends not

only on the strength of its relation to spending at the individual level (which is analyzed here), but also on its variability over time.

Since we are interested in forecasting, we shall use in the analysis which follows only data which are available at the beginning of the period under study. Thus we use past income and attitudes at the beginning of the period under study, but must ignore subsequent attitude change and income during the year for which the forecast is being made. In view of the findings of the previous section we shall analyze the predictive value of data on consumer attitudes over half-year periods rather than an entire year. Specifically, we shall consider to what extent the index of consumer attitudes and the index of buying intentions, as measured in June 1954, foreshadow purchases in the second half of 1954. In this section we shall use a multiple correlation technique.

When we analyze the relation between attitudes (A) and purchases (P) the "other" variables which should be held constant may be grouped into three categories: first, those which affect A as well as P. Analysis over a period of years indicates that two important variables fall into this category and should be taken into account: income and age. Optimism is more frequent in the higher- than in the lower-income groups. The number of purchases also increases with income, and this relation is by no means due entirely to the greater optimism prevailing among the upper-income groups. Similarly for age—young people are more optimistic than older people; they also make more purchases (partly because of their greater optimism, but also because they must usually equip a newly formed household). A second category of related variables includes those which have been found to affect P but which show no significant relation to A (after account has been taken of income and age): such variables as marital status, number and age of children, education, place of residence, home-ownership status. If the sample is sufficiently large, groups which are homogeneous with respect to income and age but differ in attitudes should have similar distributions of this second type of characteristic. These variables may then be disregarded in our analysis without biasing the relationship between A and P, although some random variations may arise from the presence of small subgroups in the sample.

The third category of related variables includes those which affect or determine attitudes but have no effect on purchases, except via their influence on attitudes, age, or income. Among the determinants of attitudes are a wide variety of stimuli originating in the economic and political environment as well as experiences of a more personal nature. However, the determinants of attitudes also include age and income. Hence, when we relate attitudes, income and age to purchases

in a single equation, we do not know how much of the effect of income and age on purchases is brought about indirectly through their impact on attitudes.[12]

Keeping this problem of interpretation in mind, we now present two regression equations. The first relates income (Y_{-1}), age (X), and the index of consumer attitudes (A) to purchases in the subsequent half-year. In equation (2) the index of buying intentions (B) is added to the independent variables. Purchases are for the period June-December 1954. Attitudes and buying intentions are measured as of June 1954. The income variable represents 1953 income, the current year's income being as yet undetermined and unknown in June. The numbers in parentheses are the standard errors of the coefficients.[13] R is the multiple correlation coefficient.

$$(1) \qquad P = .708 + \underset{(.017)}{.060}Y_{-1} - \underset{(.024)}{.066}X + \underset{(.015)}{.031}A$$

$$R = .23$$

$$(2) \qquad P = .624 + \underset{(.016)}{.052}Y_{-1} - \underset{(.024)}{.053}X + \underset{(.015)}{.022}A + \underset{(.044)}{.131}B$$

$$R = .25$$

In equation (1) much of the explanation of P comes from income and some comes from age, but attitudes also show a significant relation to purchases. The net effect of adding the index of buying intentions (B) is to raise the multiple correlation coefficient from .23 to .25. Thus, while buying intentions have a highly significant relation to consumer purchases, they are also correlated with our other three independent variables; their introduction therefore reduces the contribution of the other three variables. In particular, the contribution of consumer attitudes now appears to be of less significance. When we examine the intercorrelations between our variables as measured by the simple and partial correlation coefficients (Table V), we find that the simple correlations (zero order) of purchases with income and buying plans are somewhat higher than the correlations of purchases with age and attitudes. Several of the intercorrelations between the independent variables are stronger than the correlations of any one of them with purchases. Particularly strong are the correlations between

[12] Given the following equations, the "pure" relation between P and A is not identifiable:

$$A = f_1\ (Y,X,O)$$
$$P = f_2\ (A,Y,X)$$

where A = attitudes, Y = income, X = age, O = a short-cut expression for other determinants of attitudes, and P = purchases.

[13] The standard errors provide an unsatisfactory test of significance in this case, partly because of the interdependence of the independent variables mentioned above, and also because we are dealing with a clustered sample.

income and attitudes, income and buying plans, and attitudes and buying plans.

The third-order coefficients (Part B of Table V) indicate that the net relationship of income and of buying plans to purchases are of the same order of magnitude. The relations of age and attitudes to purchases are considerably weaker. All four variables appear to make a rather small contribution to the explanation of number of major purchases. However, it should be recalled in evaluating these coefficients that cross-section analysis always yields far lower correlations than time-series studies making use of the same variables. This is due to the

TABLE V.—INTERRELATIONSHIPS BETWEEN PURCHASES, INCOME, AGE, ATTITUDES AND BUYING PLANS

A. Zero Order Correlation Coefficients:										
	R_{12}	R_{13}	R_{14}[a]	R_{15}	R_{23}	R_{24}	R_{25}	R_{34}	R_{35}	R_{45}
2nd Half—1954	.18	−.13	.14	.19	−.08	.31	.25	−.12	−.22	.28
B. 3rd Order Correlation Coefficients:										
	$R_{12.345}$			$R_{13.245}$			$R_{14.235}$		$R_{15.234}$	
2nd Half—1954	.12			−.08			.06		.11	
C. Multiple Correlation Coefficients:										
	$R_{1.23}$					$R_{1.45}$			$R_{1.2345}$	
2nd Half—1954	.21					.21			.25	

1 = Purchases (P)
2 = Income (Y_{-1})
3 = Age (X)
4 = Index of consumer attitudes (A)
5 = Buying plans (B)

[a] The 1st order correlation coefficient for the same two variables, holding income alone constant ($R_{14.2}$), is .082. The second order coefficient, holding income and age constant ($R_{14.23}$), is .077. Therefore in Part II of this paper it was deemed sufficient to hold income constant.

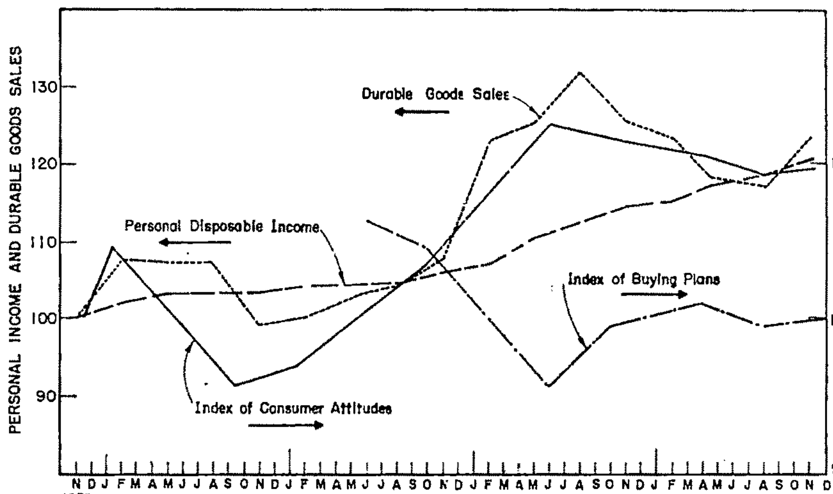
multiplicity of factors which affect individual behavior (most of which are averaged out in the aggregate). For the period considered here, in our sample of about 675 families, the simple correlation between income and number of purchases was only .18 (while time-series correlations between disposable income and consumer spending have yielded correlation coefficients in excess of .90).

Part C of Table V compares the joint explanatory value, at the individual level, of income and age with the joint explanatory value of attitudes and buying plans. It appears that about equally accurate forecasts can be obtained from either of the pairs of variables (disregarding the other pair). This conclusion applies only to cross-section forecasting. When we draw inferences about forecasting at the aggregative level, the cyclical behavior of our variables must be taken into account. Of course, the distribution of age of family heads is not sub-

ject to short-run cyclical changes at all. The cross-section income variable reflects primarily people's position on the income scale, while aggregate income reflects changes in the level of income and does vary cyclically.

The cyclical movements of our variables are illustrated for the years 1952-56 in Chart I. The Chart shows that the index of consumer attitudes exhibits pronounced cyclical fluctuations. Two of the compo-

CHART I. TREND OF DURABLE GOODS SALES, PERSONAL INCOME, CONSUMER ATTITUDES AND BUYING PLANS, 1952-56



Sources: Durable Goods Sales and Personal Disposable Income series are U. S. Dept. of Commerce quarterly data, seasonally adjusted, last quarter 1952 = 100. The Index of Consumer Attitudes and the Index of Buying Plans are Survey Research Center data; see Katona and Mueller, *Consumer Expectations, 1953-56* and, for the most recent data, Foundation for Research on Human Behavior, *Prospects for 1957: Consumer Expectations and Business Capital Appropriations* (Ann Arbor, Mich., 1957). The Index of Consumer Attitudes and the Index of Buying Plans are not adjusted for seasonal variation. For Index of Consumer Attitudes Nov.-Dec. 1952 = 100. Since the Index of Buying Plans is not available for 1952, the last survey, Nov. 1955 = 100. It should be noted that the Buying Plans Index is plotted as of the survey date, although it should be related to future rather than current purchases.

nents of the buying plans index (plans to buy houses and cars) are available prior to June 1954; they register a sharp upturn between early 1954 and June 1954. The drop in buying plans between late 1954 and mid-1955 may have been reinforced by seasonal factors, but buying plans remained below peak levels throughout 1956. Personal disposable income shows cyclical variations in the rate of growth.

A further consideration in evaluating the usefulness of attitudinal data for forecasting is sensitivity to incipient changes in the environ-

ment. The correlation between the index of consumer attitudes in June and income of the current calendar year is higher than the correlation between June attitudes and income of the previous calendar year. When, in retrospect, we use current income[14] (instead of the previous year's income) in our regressions, the multiple correlation coefficients are hardly raised at all. However, when current income is held constant, the relation between attitudes and purchases is weakened somewhat more than it is weakened when the previous year's income is held constant. While this matter is beyond the scope of the present article, it does suggest that attitudinal measures may be advance indicators of income changes which are in the making.[15]

IV. *The Role of Consumer Attitudes, June-December 1955*

For purposes of this analysis, the second half of 1955 offers an interesting contrast to the second half of 1954. In the fall of 1954 the economy was in the process of recovering from a mild recession. By the second half of 1955, the third half-year of our study, the economic climate had improved greatly. According to Department of Commerce data, disposable personal income in the second half of 1954 was 2 per cent above a year earlier. In 1955 it rose sharply, and in the second half of that year it was 8 per cent above a year earlier. Consumer attitudes as well as intentions to buy cars and houses, on the other hand, already showed substantial improvement in June 1954, and attitudes reflected even greater optimism by the end of that year. In the second half of 1955 attitudes showed stability at a very high level. Thus it appears likely that in 1954 a strong impetus to spending came from the growth in optimism; while in 1955 increases in income provided the major stimulus to spending.[16]

This inference, derived from aggregative comparisons, is borne out but the reinterview test. Table VI relates purchases in the second half of 1955 to attitudes in June 1955. No difference appears in the ratio of actual to expected purchases between the *optimist* and the *medium* groups. The *pessimists* show a somewhat lower ratio, but this group had shrunk to 10 per cent of the sample by June 1955. The differences in Table VI are not statistically significant.

[14] Current income here means income of the entire calendar year in progress. The forecast is being made in June for the second half of that year.

[15] See also T. F. Juster, "Expectational Data and Short Term Forecasting: An Analysis of the Saving-Income Ratio, with Special Reference to the Demand for Consumer Durable Goods" (unpublished Ph.D. thesis, Columbia University, New York, 1957).

[16] An additional important stimulus to spending in 1955, particularly on automobiles, came from the lengthening of instalment credit maturities according to a study by the Board of Governors of the Federal Reserve System, *Consumer Instalment Credit*, Vols. I-VI (Washington, 1957), Pt. IV, pp. 1-7, 58-79.

For the second half of 1955 our data are less complete than for the previous year. Therefore we shall here relate purchases in the second half of 1955 only to initial index scores in June 1955, and not to attitude change during the period. However, for some index components initial as well as final measurements are available.

When we look at the components of the index, we discover that favorable expectations regarding business conditions—both long-term and short-term—and favorable evaluations of buying conditions in June 1955 were positively related to number of purchases. The lack of

TABLE VI.—INDEX OF CONSUMER ATTITUDES: INITIAL ATTITUDES, JUNE 1955, RELATED TO NUMBER OF PURCHASES IN JUNE–DECEMBER 1955

	Average Number of Purchases per Family by Consumers Who in June 1955 Were:		
	Optimistic	Medium	Pessimistic
Actual Purchases[a]	1.10	1.00	.77
Expected Purchases[b]	1.09	.99	.84
Ratio of Actual to Expected[c]	1.01	1.01	.92
Number of Cases	292	317	65

[a] Observed average.
[b] Expected on the basis of income distribution within each of the 3 attitude groups.
[c] Differences are not statistically significant.

correspondence between initial attitudes in June 1955 and subsequent purchases is found primarily in the area of personal financial attitudes. Whereas people's evaluations of recent changes in their financial position contributed substantially toward the relationship between the index and subsequent purchases in June 1954, they did not have the expected effect in the second half of 1955. People who felt worse off in June 1955 had a much higher ratio of actual to expected purchases in the following half-year than those who were *medium,* and even a somewhat higher ratio than those who were better off. This result may be explained by the pattern of attitude change during the period. Of the people who felt "worse off" in June 1955, 20 per cent felt "better off" half a year later, while only 4 per cent of those who initially felt "better off" changed to "worse off." People who initially were pessimistic and became optimistic were particularly active buyers. Their ratio of actual to expected purchases was 1.41, compared with 1.07 for people who were better off at both dates. Having perhaps held back for a time, their improved evaluation of their financial situation led this group to buy more than the people who had been optimistic all along.

A further test of the relation between attitudes and spending in the

second half of 1955 is provided by our regression equations. Equations (3) and (4) correspond to equations (1) and (2) in Section III above, except that they apply to the second half of 1955 rather than the second half of 1954. Equation (3) excludes and equation (4) includes buying intentions among the explanatory variables.

$$P = .758 + \underset{(.017)}{.085}Y_{-1} - \underset{(.025)}{.063}X + \underset{(.018)}{.015}A \tag{3}$$

$$R = .25$$

$$P = .655 + \underset{(.018)}{.073}Y_{-1} - \underset{(.026)}{.050}X + \underset{(.019)}{.011}A + \underset{(.048)}{.157}B \tag{4}$$

$$R = .28$$

In both equations the coefficient of A is smaller than its standard error. Thus it appears again that attitudes alone had no significant effect on purchases in the second half of 1955. The index of buying intentions, however, once again proved to be a very significant predictor of consumer spending.[17]

The intercorrelations between our variables and the partial correlation coefficients also differ in some respects from those obtained for the second half of 1954: they indicate that income was a more important determinant of consumer spending during this second period. The simple correlations between purchases and income is .23 for June-December 1955, compared with .18 in the earlier period. The net correlation between purchases and income (*i.e.*, the third order coefficient) holding the other three variables constant, also is higher. The net correlation between purchases and attitudes on the other hand is lower, being a mere .02. The joint correlation of income and age with purchases (disregarding attitudes and buying intentions) is .25 as compared with .21 for the second half of 1954. The joint correlation of attitudes and buying plans with purchases (disregarding income and age) is .21, the same as in the second half of 1954.

Essentially then, we find that consumer attitudes, by themselves, make only a very small contribution toward the explanation of consumer purchases in the second half of 1955. Undoubtedly, the difference in the influence of consumer attitudes during the two periods studied reflects in large part the varying growth-rate of income. If we define "autonomous" variations in consumer spending as variations which are unrelated to changes in income, it is clear that autonomous variations may, but need not always, occur. In the second half of 1955, in contrast to the second half of 1954, consumer spending appears to have been largely nonautonomous.

[17] This is true despite the fact that buying intentions here are measured as of December 1954. They are not available for June 1955.

In addition, we may point to certain limitations of the attitude measurements which may affect our results for 1955. Differences in opinions and attitudes were much greater in mid-1954 than in mid-1955. With regard to almost all attitudes in the index, the group of pessimists had shrunk considerably between mid-1954 and mid-1955. Using the index as a yardstick, the proportion of pessimists in the sample declined from one-fourth in mid-1954 to one-tenth in mid-1955. This fact of itself makes it difficult to get reliable differences between optimists and pessimists. But beyond that, it raises questions about the character of the pessimistic group. For example, the 8 per cent of consumers who in the midst of a period of great prosperity saw "bad times" ahead may consist in large part of the hard core of chronically pessimistic and disgruntled individuals. These people may differ considerably in their behavior from the larger group who are pessimistic at a time when unfavorable developments are thought to be imminent, but who are optimistic at other times. Similarly, the reservations which people expressed either about business conditions or about their financial situation (putting them into the *medium* group) may have been less serious in mid-1955 than in mid-1954. Our attitudinal measures are not yet sufficiently sensitive to register the qualitative differences which may occur from time to time in what appears to be the same answer.

Given our present measurements, interpersonal comparisons are likely to be most successful when marked differences in attitudes and opinions exist. They are least likely to be successful when, as in the second half of 1955, (a) a considerable unanimity of opinions and attitudes has been attained, and (b) no substantial changes have occurred in the economic environment to disturb this unanimity. At such times deviations from the prevailing state of sentiment may reflect to a large extent personality factors, temporary personal experiences, and unreliability of the data. Nevertheless, in the aggregate attitudinal measurements are of value, even during such periods. For we need to know whether or not the prevailing state of confidence and satisfaction has been altered or is continuing.

V. *Conclusions*

Under certain conditions attitudinal variables do contribute significantly toward an explanation of fluctuations in consumer spending, while under others they do not exhibit an independent effect. The next goal is to learn more about the conditions under which attitudes do, or do not, help to explain variations in consumer purchases.

Our study suggests that information on consumer attitudes is most valuable at times when there is a marked divergence between changes

in income and changes in attitudes such as occurred in mid-1951 or in the second half of 1954. The divergence may be due to people's reactions to economic news, about price changes, tax changes, employment opportunities, sales trends, recession or recovery prospects; or it may be due to political developments such as the outcome of an election or international disturbances. There are other periods when there is very little divergence between income and attitude trends: both are high or low relative to previous levels. The second half of 1955 is a case in point. In this second case attitudes may also be influential. However, financial and demographic factors play a greater role as determinants of attitudes at such times. Therefore attitudinal data seem to add little to the explanation of consumer behavior provided by such variables as income and age. Additional studies conducted under varying economic conditions are needed to further substantiate this hypothesis.

The index of consumer attitudes which was related here to individual purchases is still in an experimental stage. Ahead is the challenging problem of seeing whether closer correlations with purchases can be established by improving the index—by adding new series, revising the weighting of components, and refining the attitudinal measures themselves.

CONSUMER INSTALMENT CREDIT

A Review Article

By WARREN L. SMITH*

This important study,[1] prepared under the direction of the Board of Governors of the Federal Reserve System at the request of the chairman of the Council of Economic Advisers, presents an elaborate factual and analytical picture of consumer instalment credit and its role in the American economy. At the time of the Council's request to the Board (early 1956), there was much concern over the rapid growth of consumer credit, and the President had just suggested to the Congress in his Economic Report that it might be desirable to re-establish, at least on a stand-by basis, selective controls over consumer credit. Accordingly, the Council requested the Board to "appraise the arguments for and against" selective controls; and much of the material presented in the study is designed to provide a basis for such an appraisal.[2]

Part I contains studies by the research staff of the Federal Reserve System —the first volume presenting a systematic survey, and the second containing specialized technical and background materials. Part II is the product of a conference of specialists held under the auspices of the National Bureau of Economic Research. Part III contains a digest of the views of the consumer credit industry and other interested parties concerning regulation. Part IV presents the findings of a sample survey of purchasers of new automobiles during 1954 and 1955.

Since these volumes represent a number of separate studies carried out by numerous scholars and research teams, it is not surprising that there is considerable duplication. My procedure will be to select what seem to be the most important issues and to summarize and evaluate the materials contained in the entire study bearing on each of them. I shall first take up the effects of consumer instalment credit on economic growth and stability; second, the responsiveness of consumer credit, and expenditures financed thereby, to general credit controls; and third, the question of selective controls.

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[1] Board of Governors of the Federal Reserve System, *Consumer Instalment Credit*, 6 vols. (Washington, 1957.) Part I, *Growth and Import*, 2 vols. Pp. ix, 388, $1.25; 287, $1.00. Part II, *Conference on Regulation*, 2 vols. Pp. xxvi, 553, $1.75; x, 161, 60¢. Part III, *Views on Regulation*. Pp. vii, 230, $1.00. Part IV, *Financing New Car Purchases: A National Survey for 1954-55*. Pp. xii, 166, 67, 60¢.

[2] The study does not take a position for or against selective controls. However, subsequent to its publication and based upon its contents, the Board of Governors transmitted a statement to the interested Congressional committees and to the Council of Economic Advisers expressing opposition to selective controls at the present time. See *Fed. Res. Bull.*, June 1957, XLIII, 647-48.

I. *Effects of Consumer Instalment Credit on Economic Growth and Stability*

A. *Growth.* Expenditures on consumer durable goods averaged about 7 per cent of disposable income in the first decade of the twentieth century, had risen to about 10 per cent during the nineteen-twenties, and averaged roughly 11 per cent during the decade 1946-55. The fraction of national wealth represented by the stock of consumer durable goods has increased correspondingly. Consumer credit has shown more rapid growth than durable-goods expenditures. The annual rate of growth in outstanding consumer instalment credit has averaged about 10 per cent since 1920, and growth has occurred in three waves: (a) from 1920-29, followed by a decline in the depression years of the early 1930's; (b) during the middle and later 1930's, followed by a decline during the second world war; and (c) during the period since the war. From 1946 to 1955, the annual rate of growth averaged 27.5 per cent.[3]

The growth of instalment credit can be attributed to a number of causes, including the growth of specialized consumer financing machinery, the promotion of credit sales by lenders and dealers in consumer durable goods, changing attitudes toward consumer debt,[4] extension of credit facilities to cover a progressively wider range of goods and services, and a persistent tendency, going back many years, toward easier credit terms.[5]

Has the development and expansion of consumer instalment credit served to promote a more rapid secular rate of economic growth? Ervin Miller argues that it has.[6] He contends that purchases of consumer durable goods should be treated as a form of investment and included in personal saving. On this basis, he argues that the introduction and extension of consumer instalment credit has probably increased the rate of capital accumulation, since the increased growth of consumer capital in the form of durable goods has probably not been fully offset by a reduction in other forms of personal saving and business capital accumulation. In addition, he suggests (following Ruth Mack) that the existence of attractive durable goods may have led to greater work effort, especially in the form of greater participation of women in the labor force.[7] And, finally, consumer credit has promoted growth by increasing the relative importance of industries producing consumer durable goods, because these lend themselves especially well to mass production methods and have therefore shown rapid increases in productivity.

[3] Detailed data on the growth of consumer instalment credit are to be found in Part I, Vol. I, Ch. 8, and Part II, Vol. I, pp. 169-234.

[4] See Part I, Vol. I, pp. 105-07; also G. Katona, "Attitudes toward Saving and Borrowing," Part II, Vol. I, pp. 450-85.

[5] See Part I, Vol. I, pp. 24-34; G. H. Moore, T. R. Atkinson, and P. A. Klein, "Changes in the Quality of Consumer Instalment Credit," Part II, Vol. I, pp. 115-25, 133-34. The effects of changing credit terms on the volume of outstanding debt are discussed in Part I, Vol. I, Ch. 7.

[6] E. Miller, "Consumer Credit and Economic Growth," Part II, Vol. I, pp. 169-234.

[7] The increased participation of women in the labor force may, in part, be made possible by the reduction of household work loads brought about by the use of household appliances. In addition, the automobile, by increasing the mobility of labor, may have somewhat reduced the level of frictional unemployment and also promoted a more efficient utilization of the labor force. See Part I, Vol. I, pp. 184-87.

In his comments on Miller's paper,[8] Moses Abramovitz suggests that the growth of consumer capital, due in good part to the development of improved techniques of consumer finance, has not only contributed to economic growth along the lines outlined by Miller, but has also produced profound and significant changes in our national life by reviving interest in property ownership and making it more widespread. He suggests that "these developments [may] have contributed to a revitalization of the bourgeois attitudes toward family, home, and estate, the weakening of which Schumpeter feared was sapping the piers of capitalism."[9]

F. A. Lutz,[10] who also discusses Miller's paper, contends that consumer credit has, on the whole, tended to reduce the rate of growth. His argument is based on the presumption that consumer durable goods are, in some sense, "less productive" than producer capital goods. In consequence, Lutz expresses a preference for concepts of saving and investment that do not include consumer durable goods. He demonstrates the likelihood that if consumer durables are not treated as capital, the development and extension of consumer instalment credit has reduced the rate of capital accumulation and depressed the rate of growth.[11]

I believe Miller and Abramovitz have the better of the argument. It is difficult to give clear meaning to the statement that producer capital is "more productive" than consumer capital. Fundamentally, productivity consists in the ability to satisfy consumer wants. In this sense consumer credit apparently rates high, since consumers pay, in general, a much higher price for their credit than producers do for theirs.[12] It would seem that for the purpose of studying economic welfare, purchases of consumer durable goods should be treated as part of saving and investment and that the imputed flow of current services from the existing stock of consumer durable goods should be included in the national income.[13]

[8] M. Abramovitz, "Comment," Part II, Vol. I, pp. 246-53.

[9] *Ibid.*, p. 252.

[10] F. A. Lutz, "Comment," Part II, Vol. I, pp. 234-45.

[11] *Ibid.*, pp. 236-41. This conclusion is qualified somewhat: see p. 241.

[12] On the cost of instalment credit to the consumer, see Part I, Vol. I, pp. 49-61. One could argue that the cost of credit to consumers exceeds its cost to business by more than the additional costs and risks to the lender would justify—that the consumer is treated discriminatorily in the credit markets. Thus, a case could be made for regulation designed to assure equality of treatment. (This point is made by Abramovitz, *op. cit.*, p. 253.) Such regulation might increase welfare by promoting a more efficient allocation of total capital between consumer and producer capital. And, significantly, it should result in some *expansion* of consumer capital at the expense of producer capital.

[13] That is, durable goods should be treated in the national accounts in the same way as houses are now handled. It would, however, be more difficult for durable goods to be treated this way than it is for houses, since market rentals in the case of the former are usually not available to serve as a basis for valuing the flow of services. On the other hand, when the accounts are used in the analysis of short-run employment problems or for the study of economic growth when the emphasis is on maintaining a balance between capacity and demand it is better to exclude imputed elements of income and to focus attention on expenditures—i.e., to treat consumer durable goods expenditures as consumption rather than investment. No employment is generated currently by imputed

The development and extension of consumer instalment credit has probably increased the rate of growth and had quite profound effects upon economic development. This is not, however, a particularly helpful conclusion, since it is virtually impossible even to venture an intelligent guess as to the magnitude of these effects. As far as the question of selective controls is concerned, our rather meager knowledge of the growth effects provides us with little basis for either favoring or opposing such controls.

B. *Stability*.[14] The cyclical effects of consumer instalment credit and the related expenditures on consumer durable goods have been the subject of considerable discussion by economists in the past.[15] The facts seem to indicate that consumer credit has contributed to most of the fluctuations in economic activity that have occurred since 1929.[16] In the early postwar years, however, markets for consumer durable goods seem to have been dominated by special factors, including wartime shortages and the resulting need for replacement, the initially low level of consumer debt, large holdings of liquid assets, the rising supplies of durable goods during the reconversion period, and the temporary applications of selective controls from September 1948 to June 1949 and from September 1950 to May 1952. As a result, instalment credit and durable-goods expenditures did not bear their usual relation to income; for example, during the 1949 recession, both durable-goods expenditures and the net change in instalment credit outstanding continued to increase. Thus, instalment credit appears to have had a stabilizing effect during most of this period.[17] Since 1952, the procyclical behavior of earlier years has been resumed. Consumer credit appears to have been a significant factor in the 1953-54 recession, as well as in the expansion beginning in mid-1954.[18]

Fundamental to an explanation of the cyclical role of consumer credit appears to be the fact that such credit is largely used to finance the purchase of durable goods.[19] An explanation of cyclical fluctuations in durable-goods buying can be developed in terms of the acceleration principle. If the demand for the services of durable goods is a function of the level of income, there will be

elements of income, and the causal relations that may exist between income and expenditures are likely to be obscured rather than sharpened by their inclusion. Moreover, the increments to capacity associated with the growth of the stock of consumer durable goods are not such as to raise important questions of utilization.

[14] This section of the review is based largely upon the following portions of the study: Part I, Vol. I, Ch. 11; D. D. Humphrey, "Instalment Credit and Business Cycles," Part II, Vol. I, pp. 3-55; V. L. Bassie, "Comment" (on Humphrey's paper), *ibid.*, pp. 56-69.

[15] A summary of earlier studies of the relation of consumer instalment credit to economic stability is given in Part I, Vol. I, Ch. 12.

[16] Part I, Vol. I, pp. 210-12.

[17] *Ibid.*, pp. 212-14; Humphrey, *op. cit.*, pp. 29-32.

[18] Humphrey, *op. cit.*, pp. 32-34.

[19] Of the total of $29.0 billion of instalment credit outstanding at the end of 1955, 46 per cent was incurred for the purchase of automobiles (new and used), 26 per cent for the purchase of other durable goods, 6 per cent were repair and modernization loans, and the remaining 22 per cent were personal loans. Part I, Vol. I, Table 3, p. 26. The most important single use of funds obtained through personal instalment loans (from consumer finance companies) is the consolidation of overdue bills. Part I, Vol. I, Table 7, p. 33.

an equilibrium stock of consumer durable goods corresponding to each income level. The demand for net additions to the stock will be a function not of the level but of the rate of change of income.[20] Combined with various other relationships, such a consumer durable-goods accelerator is capable of contributing to (or even causing) cyclical fluctuations in economic activity.[21] It seems probable that such a relationship (in a complex nonlinear form) does in fact exist and constitutes the basic explanation of the instability that characterizes the consumer durable-goods industries. The destabilizing effect of the accelerator is undoubtedly intensified in the downward direction by the fact that replacement can be postponed beyond the normal time[22] and in the upward direction by the availability of consumer credit which permits rapid expansion of purchases to make up for the postponement of replacement during the downswing.

How does consumer credit further serve to intensify instability in the demand for consumer durable goods and in aggregate demand generally? Several strands of explanation are suggested in the study.

1. The development of a specialized and efficient system of consumer credit and the strong promotion of its use have undoubtedly increased, in a general way, the demand for consumer durable goods, thus enlarging the sector to which the acceleration effect is applicable.[23]

2. To the extent that lenders to consumers tend to ease credit conditions during upswings and tighten them during downswings because of changes in their attitude toward the risks of consumer loans, the amplitude of the swings would be increased.[24] This effect seems to be asymmetrical—*i.e.*, the tendency to ease credit terms during booms is much stronger than the tendency to tighten credit terms during recessions. The recent substantial lengthening of maturities and reduction in down-payments on instalment loans (especially new automobile loans) during 1955 and 1956 clearly served to increase expenditures.[25]

[20] Humphrey, *op. cit.*, pp. 11-13; Bassie, *op. cit.*, pp. 58-61.

[21] It is interesting to note that the combination of such an accelerator with an explanation of investment by industries producing consumer durable goods based also on the acceleration principle would introduce an intensified cyclical tendency into the economy. Income would have to increase at an increasing rate in order to justify any net new investment at all in the consumer durable-goods industries.

[22] Bassie, *op. cit.*, p. 57.

[23] Part I, Vol. I, pp. 218, 223.

[24] *Loc. cit.*; see also Moore, Atkinson, and Klein, *op. cit.*, pp. 71, 125-27, where some specific signs of procyclical swings in credit terms are indicated.

[25] It is estimated that the median maturity of new automobile loans increased from about 24 months in 1954 to about 30 months in 1955 and that the median down-payment fell from about one-third to about one-fourth during the same period. (See Part IV, Table IV-1, p. 92; also Part I, Vol. II, Suppl. III.) An increasing tendency to overvalue cars traded in has reduced the effective down-payment. (See Part IV, pp. 15-19.) Incidentally, it is suggested in the study that a further substantial relaxation of credit terms appears somewhat unlikely for two reasons: (a) The effect of successive increases in loan maturity in reducing the monthly payment and thus expanding the market is subject to diminishing returns, partly due to the resulting increase in finance charges. (See Part I, Vol. I, pp. 135-36, 349-50.) (b) Terms on new automobiles have already been eased to the point where, in many cases, the outstanding debt exceeds the resale value of the car at the time of purchase and for some time thereafter, thus exposing the lender to substantial risk. (See

3. The attitudes of consumer borrowers toward incurring debt to buy durable goods (as distinct from their attitude toward the goods themselves) may shift in a destabilizing fashion during the business cycle.[26]

4. The existence of consumer-credit facilities may shift the pattern of consumer saving in such a way as to intensify fluctuations. In the absence of consumer credit (or its less ready availability), consumers would have to save in advance to buy durable goods, while consumer credit permits them (except to the extent of the down-payment) to buy first and save later. Since buying tends to expand during the upswing, this probably serves, to an unknown extent, to shift consumer saving from the upswing to the downswing.[27]

5. Required repayment of outstanding debt may constitute a severe drag on the shrinking total of consumer purchasing power during a period of declining activity. That this can be a heavy burden is attested by the fact that payments on instalment debt in 1955 were $33.7 billion or 12.7 per cent of disposable income.[28] To the extent that repayments cause reductions in current expenditures, there is little reason to expect this effect to be especially concentrated on durable goods. That is, the depressive effects of repayments are likely to be more generalized than the stimulative effects of credit extensions.[29] Of course, repayments may not cause a fully equivalent contraction in spending. Current saving may be reduced below what it would be in the absence of the need to repay, or past accumulations of assets may be liquidated to obtain the necessary funds.[30]

Moore, Atkinson, and Klein, *op. cit.*, pp. 133-34, and T. A. Andersen, "Market Practices in the Consumer Lending Industry," Part II, Vol. I, pp. 429-30.)

[26] Part I, Vol. I, p. 218; see also Katona, *op. cit.*, for evidence that optimistic income expectations are associated with increased consumer borrowing to purchase durable goods.

[27] Part I, Vol. I, pp. 230-31.

[28] The figures exaggerate somewhat the repayment burden during a period of declining income, since a substantial part of the payments were based on debt incurred during 1955. Debt incurred during the current year would presumably fall during a slump. A comparison of payments on instalment debt with other fixed commitments of consumers is shown in Part I, Vol. I, Table 47, p. 196. This shows that the burden of instalment-debt repayment is larger than that of mortgage debt, rent, and life insurance and annuity premiums put together. Although total outstanding mortgage debt on 1- to 4-family houses was more than three times total consumer instalment debt at the end of 1956, the repayment burden of mortgage debt is smaller due to its longer average maturity. (See Humphrey, *op. cit.*, pp. 7-8.) On the other hand, the drag of instalment debt repayments will be eliminated quite rapidly as the debt is paid off, while the drag of mortgage debt will continue virtually undiminished for a relatively long time. See the discussion in Part I, Vol. I, pp. 194-99.

[29] Actually, of course, credit extensions may have effects on expenditures for nondurable goods and services. For example, if credit were not available to a consumer to buy a television set, he might buy the set anyway and curtail his spending on nondurable items. Nevertheless, it seems likely that the effects are fairly concentrated on durable goods.

[30] Apparently a considerable number of households that have instalment debt outstanding also possess liquid assets. See Part I, Vol. I, pp. 92-93, 232; Part II, Vol. I, Table 2, p. 493. On the relation between instalment debt and liquid assets, see J. Tobin, "Consumer Debt and Spending; Some Evidence from Analysis of a Survey," Part II, Vol. I, pp. 532-36. Liquidation of marketable or other securities to obtain funds to repay debt during a recession would, in one way or another, tend to depress security prices, but of course any effects of this kind could presumably be offset by the monetary authorities.

6. If consumers are overburdened with debt at a time when income falls sharply and are in consequence forced to default, the solvency of financial institutions may be imperiled with disastrous effects on the economy. Commercial banks have moved more and more deeply into the consumer-credit field in recent years. They now supply directly or indirectly (via loans to other consumer lenders) about half of the total credit made available to consumers.[31] And consumer loans have become an increasingly large fraction of their assets—representing about 14 per cent of total loans and discounts of all insured banks on December 31, 1955.[32] Thus the commercial banking system has become more vulnerable to declines in the quality and the resulting losses on consumer loans. However, delinquencies, repossessions, and losses on consumer loans have been surprisingly low, even during the 1930's when incomes were falling.[33]

A consideration of the various effects of consumer credit on stability leads to the conclusion that it may for various reasons be a significant factor in the cumulative propulsion of the economy in one direction or the other but that it is not likely to be a major factor in producing turning points. Of course, a consumer durable-goods accelerator, if it is operative, may help to explain turning points, and consumer credit may, by increasing the size of the accelerator or the scope of the sector to which it is applicable, contribute something.

Humphrey in his interesting paper emphasizes the net change in outstanding credit as the best measure of the impact of consumer credit, since it represents the net supplemental purchasing power (sometimes positive, sometimes negative) provided by the consumer-credit machinery. I suspect that this approach exaggerates the effects of consumer credit, perhaps substantially. If E stands for credit extensions, R for repayments, N for the net change in outstanding credit, and C for the change in consumer expenditures caused by consumer credit, we have

$$N = E - R$$

and

$$C = \alpha E - \beta R,$$

where α is the per cent of credit-financed expenditures that would not have been made if credit had not been available and β is the per cent of repayments that is made at the expense of other current expenditures. One might expect that α would be smaller in a boom, when high incomes may permit cash payments in many cases if credit is not available, than in a slump when financial resources are more limited. On the other hand, β may well be larger in a boom than in a slump. Under these conditions, when E rises relative to R, as normally occurs during a boom, the fall in α and rise in β would mean that C

[31] Part I, Vol. II, Table 2, p. 53.

[32] Part I, Vol. I, p. 37.

[33] See Part I, Vol. I, pp. 72-84, and Moore, Atkinson, and Klein, *op. cit.* The latter paper develops some evidence of a deterioration of consumer credit since 1950, due apparently to the reduction of downpayment requirements and the extension of maturities (p. 143). How serious this might prove to be in the event of a decline in business activity is difficult to judge.

would rise less than N. In a slump when E falls relative to R, the rise in α and fall in β would cause C to fall less than N. Although α and β may not behave in the way suggested (and it would be extremely difficult to find out whether they do or not), it is quite clear that the use of the net credit change as a measure of the impact of consumer credit (*i.e.*, the assumption that $\alpha = \beta = 1$—or 100 per cent—under all conditions) is not justified. Hence, one may doubt Humphrey's contention[34] that the automatic destabilizing effects of consumer credit are often more serious than changes in inventory investment and may be more than sufficient to counterbalance the automatic stabilizing effects of changes in the personal income tax.[35]

We may conclude that consumer instalment credit is a factor in producing instability in the economy. However, it is by no means clear that the destabilizing effects of such credit are so powerful or of such great strategic importance that it should, on this ground alone, be specially singled out for control.

II. *The Responsiveness of Consumer Instalment Credit to General Credit Controls*

The question of the sensitivity of consumer spending financed by instalment credit to general credit controls is important, both in judging the possible need for selective controls and for understanding the way in which general credit controls exert their effects on the economy. The study contains contributions bearing on this question by a Federal Reserve research team and by individual scholars.[36]

The analysis of the effects of general credit controls on credit-financed consumer spending is concerned with the effects of these controls on the cost and availability of funds to the major consumer lenders, the changes these lenders are thus induced to make in their terms of lending, and the resulting reactions of consumer borrowers. The material presented in the study relates mainly to commercial banks and sales finance companies, which are the most inportant lenders, and we shall consider these two groups of institutions in turn.[37]

[34] Humphrey, *op. cit.*, pp. 6, 37-42.

[35] A little experimentation with the data for net credit changes for the years 1953, 1954, and 1955, indicates that quite small systematic changes in α and β of the sort indicated above can alter drastically the estimates of the impact of consumer credit on expenditures.

[36] The results of the Federal Reserve study are presented in Part I, Vol. I, Ch. 13. Further details of this study are provided in Part I, Vol. II, Suppl. II, pp. 43-140. See also E. Shapiro and D. Meiselman, "The Financing of Consumer Credit Institutions"; D. P. Jacobs, "Sources and Costs of Funds of Large Sales Finance Companies"; and J. S. Earley, "Comment" (on the Shapiro-Meiselman and Jacobs papers), Part II, Vol. I, pp. 298-323, 324-413, and 414-23, respectively.

[37] At the end of 1956, of the $31.6 billion of outstanding consumer instalment credit, 37 per cent was held by commercial banks, 29 per cent by sales finance companies, 20 per cent by other financial institutions, and 14 per cent by retail outlets. (*Fed. Res. Bull.*, Apr. 1957, XLIII, 452.) Commercial banks are an important source of funds to other consumer lenders, and it is estimated that they have been supplying, directly and indirectly, more than half of the credit made available to consumers. (Part I, Vol. II, p. 53.) The study

A. *Commercial Banks.* Banks extend consumer credit by making direct loans to consumers and by the purchase of paper from retail establishments, particularly automobile dealers. Consumer instalment credit is an exceptionally profitable outlet for bank funds. Interest rates are much higher than on most of the other types of loans that banks make.[38] The costs associated with the extension of consumer credit are undoubtedly also high, but even after allowance for these costs the returns are very attractive.[39] And the risks of loss do not appear very great, in view of the relatively favorable delinquency and loss experience with consumer loans, even during the depression years of the 1930's.

Presumably monetary policy exerts its influence on the volume of consumer loans made by the banking system in a way generally similar to the way in which it affects the cost and availability of other forms of bank credit. When the supply of bank credit is restricted by Federal Reserve action, interest rates may be raised and standards of acceptability made more rigorous for consumer loans, as for other types. Such action may take the form of reducing the allotment of funds to the consumer credit department of the bank (most banks now have such departments) and the establishment of a ceiling on the amount of consumer loans to be admitted to the bank's portfolio. In order to enforce such limitations, the consumer credit department may raise interest rates charged, set more restrictive standard terms (down-payments and maturities), permit fewer deviations from standard terms, raise its standard with respect to income and other characteristics of borrowers, etc.[40]

There are, however, some reasons to doubt how strong these effects will be. If the banking system is in a highly liquid position at the beginning of a period of credit restraint, it may be able to escape the effects of credit restriction on its loan policy generally by selling shorter-term government securities. This seems to have happened in 1955-56. Between December 1954 and February 1957, all commercial banks expanded their loans by \$18.8 billion while reducing their government security holdings by \$12.3 billion. Of course, once liquidity has been reduced substantially, the effects of a restrictive credit policy are likely to become stronger. To the extent that it does prove necessary or advisable for the banks to restrict their lending, the position of the consumer borrower for a number of reasons seems to be relatively secure. For one thing, consumer credit is a very profitable business for the banks. While, as bankers point out, short-run profitability is only one of the factors influencing the allocation of their supply of loan funds,[41] it is probably an important factor. In addition, there is the matter of costs. Instalment lending is usually handled

also devotes some attention to consumer-finance companies (small-loan companies). Since loans made by these companies make a less important and concentrated contribution to aggregate demand, we shall not discuss them.

[38] For information on interest charges on consumer instalment credit, see Part I, Vol. I, pp. 49-61, and Part IV, pp. 115-21.

[39] A survey of commercial banks at the end of 1955 by the American Bankers Association showed a ratio of net income (after gross instalment credit expenses) to outstandings of 5.29 per cent. Andersen, *op. cit.*, p. 433. See also Part I, Vol. II, pp. 63-64.

[40] See Part I, Vol. I, pp. 265-67; Part I, Vol. II, pp. 67-73.

[41] Part I, Vol. I, pp. 266-69.

by a separate department with its own staff, whose specialized training renders it of little value to other departments of the bank. To utilize the bank's staff to the full requires the maintenance of a large volume of consumer-credit activity.[42] Moreover, banks are undoubtedly subjected to some pressure by automobile, appliance, and other dealers who are dependent upon an ample flow of credit to maintain a profitable volume of sales. The competition that prevails among banks and sales finance companies may quite frequently make it a matter of vital importance to a bank to avoid alienating its dealer-customers. If the bank drives the dealer elsewhere for accommodation in a time of tight credit, it may be difficult to reattract his business at a later time when funds are more readily available.[43]

When credit conditions tighten, there are several ways in which banks may adjust their consumer-lending operations. As they sell securities to obtain additional funds for lending, the cost of funds obtained in this way tends to increase. One possible reaction as far as consumer credit is concerned is the tightening up of lending terms and credit standards. But an alternative that may often be more feasible in light of the pressures of competition may be to go on making loans on easy terms and, if necessary, raise interest rates charged. Dealers in most cases are unlikely to object to such action, in light of the well known insensitivity of instalment buyers to changes in finance charges.[44] Of course, interest rates charged by banks on most types of customer loans, including consumer loans, are notoriously sticky and influenced by custom, and it may often happen, in view particularly of the exceedingly high profitability of consumer lending, that easy lending terms will be maintained without any appreciable rise in interest rates, even though the cost of funds rises substantially.

B. *Sales Finance Companies*. There are about 2,600 sales finance companies in the United States, including a few large companies which operate on a national scale, a number of regional companies, and many small local concerns. It is estimated that about 75 per cent of the outstanding consumer loans of these companies as of June 30, 1955, were held by the 20 largest companies, having outstanding consumer loans of $25 million and over. About 60 per cent of the loans are held by the four largest companies.[45]

[42] Part I, Vol. II, p. 67.

[43] *Ibid.*, pp. 66-68. Relations between lenders and dealers are discussed in many parts of the study. See Part I, Vol. I, pp. 44, 54-56, 66-67; Part I, Vol. II, pp. 109, 149-53, 164-65; Andersen, *op. cit.*, pp. 424-40; W. P. Mors, "Comment" (on Andersen's paper), Part II, Vol. I, pp. 440-49; Marcus Nadler, "For Standby Consumer Credit Control," Part II, Vol. II, p. 17.

[44] Part I, Vol. I, pp. 60-61. In fact, maturities may be lengthened a little if necessary to offset the effect of higher finance charges on monthly payments. Incidentally, dealers may actually favor increased finance charges if (a) they share the profits with the lending agency through a dealer reserve arrangement (as is usually the case), and (b) they feel that their customers are insensitive to finance charges. On these matters, including the various prevalent financial arrangements between dealers and lenders, see Part I, Vol. I, pp. 54-56, 75-76; Part I, Vol. II, pp. 149-55, 164; and Andersen, *op. cit.*, pp. 427-28, 432-37.

[45] See "Survey of Finance Companies, Mid-1955," *Fed. Res. Bull.*, Apr. 1957, XLIII, 392-408, esp. Suppl. Table I, p. 403; Jacobs, *op. cit.*, p. 326.

Sales finance companies (especially the larger ones) obtain most of their funds by borrowing. Short-term funds are obtained by way of loans from commercial banks, with which the companies maintain lines of credit, and by the use of commercial paper. The smaller companies do not rely as heavily on commercial paper as the larger companies do, and to the extent that they do use commercial paper it is sold through the regular dealer market. The largest companies obtain large amounts of funds—though the proportion varies considerably with conditions—through the direct placement of commercial paper, largely with nonfinancial corporations. In addition, a substantial (but varying) share of funds is obtained by borrowing at long-term.

How does a restrictive general monetary policy affect the cost and availability of funds to finance expanded consumer-lending by sales finance companies? As the demand for consumer credit increases, finance companies apparently encounter some difficulty in raising additional funds through the issuance of open-market paper. In recent years, the large companies have perfected their techniques for direct placement of such paper. The issues of large companies are now essentially tap issues (*i.e.*, continuously available on demand) in any desired maturity from 30 to 270 days, with yields that rise in steps as the maturity increases. These issues have proved to be an attractive repository for the surplus liquid funds of large nonfinancial corporations and as knowledge of their properties has spread, this market has increased in scope. However, in the short run, the demand for this paper seems to be quite inelastic. It competes with other short-term low-risk money-market assets, including repurchase agreements with government security dealers, and, most important, Treasury bills. When credit conditions tighten, finance companies are able to maintain their share of these funds only by sharply increasing the interest rates they pay to a level competitive with the yields on the other short-term investments.[46] Similarly, the smaller finance companies apparently find it rather difficult in times of tightening credit to get additional funds by the sale of commercial paper in the open market.

When it becomes difficult to obtain additional funds through the issuance of open-market paper, finance companies are forced to turn more to banks for loans. The supply of funds from this source is also limited. It can be expanded either by opening new lines or by utilizing existing lines more intensively. The opening of new lines is likely to be rather costly and difficult, especially for the larger companies, due to the necessity of turning to a large number of small banks (lines at the larger banks being limited by the 10 per cent limit on loans to one borrower). Fuller utilization of existing lines seems to encounter some resistance from the lending banks in times of tight credit; and, moreover, it means that their availability in the contingency of a sharp drop in the supply of funds from commercial paper must be foregone.[47] In addition, the cost of bank funds seems to rise quite sharply as credit

[46] On the direct placement of commercial paper by large sales finance companies, see Jacobs, *op. cit.*, esp. pp. 353-79.

[47] On bank lines of credit to sales-finance companies and their utilization, see Part I, Vol. I, pp. 269-72; Part I, Vol. II, pp. 73-99; Jacobs, *op. cit.*, pp. 341-52.

tightens, due to the rise in interest rates charged, as well as to increases in compensating balance requirements.[48]

When credit tightens, the limited availability and rising cost of short-term funds, both from commercial paper and from bank loans, pushes sales finance companies increasingly into the long-term market.[49] Another factor working in this direction during a substantial expansion is the desire to maintain a balanced capital structure. In order to borrow large additional sums at relatively favorable interest rates by expanding their regular issues of short- and long-term debt, the companies must finance part of their expansion on an equity basis or by the issuance of subordinate debt, for the protection of their regular lenders. The method most commonly employed to meet this requirement is the issuance of subordinate debentures. These issues carry relatively high interest rates but need constitute only a relatively small fraction of the financing since they provide the basis for a multiple expansion of other forms of debt.[50] Tight credit conditions tend also to force an expansion in the amount of unsubordinated long-term debt. The need to turn to the long-term market appears to put the smaller finance companies at a disadvantage, since they have access to only a limited supply of long-term funds.[51] The large companies have little difficulty in obtaining funds, either by sales of debt instruments through regular channels, or, more frequently, by direct placement with large institutional investors. However, the interest cost of these funds tends to rise in such periods. More important to finance companies than the rise in interest rates, however, is the more restrictive terms on which they may be forced to borrow. In borrowing at long term, finance companies are especially interested in obtaining options which permit early repayment on lenient terms in case the volume of consumer credit should experience a decline, or in case interest rates should fall, thus permitting them to obtain funds from other sources at reduced cost.[52]

Thus, there are several routes by which a restrictive monetary policy can raise the cost of additional funds to finance companies and put some obstacles in the way of rapid expansion. However, aside from the higher cost, it does not appear likely that the larger companies will experience any great difficulty in obtaining the funds they want. The limited access to the capital market of the smaller companies puts them at a disadvantage, and their expansion may be significantly curtailed. This may, however, merely result in a shift of borrowers to the larger finance companies and the banks, which already do the bulk of consumer instalment financing.

The important question, of course, is how the forces working at the "whole-

[48] Part I, Vol. II, pp. 78-88; Jacobs, *op. cit.*, pp. 345-48.

[49] Part I, Vol. II, pp. 112-20; Jacobs, *op. cit.*, pp. 403-04; Shapiro and Meiselman, *op. cit.*, pp. 304-05.

[50] Jacobs, *op. cit.*, pp. 379-82.

[51] Part I, Vol. II, p. 111.

[52] On long-term borrowing of large sales finance companies and the importance of prepayment options, see Jacobs, *op. cit.*, pp. 379-93; also Shapiro and Meiselman, *op. cit.*, p. 305.

sale" level, discussed above, affect the policies of sales finance companies in their dealings with consumer borrowers and in the purchase of paper from dealers, and, in turn, how the borrowing of consumers and their expenditures are affected by these policies. Sales finance companies are, in general, quite profitable enterprises,[53] and their profits are based on volume operations. A considerable part of their costs are fixed costs which do not vary with the scale of operations in the short run. As a result, there is constant pressure to increase volume and spread these costs. Moreover, costs of credit investigation, etc., do not increase proportionately with the size of the loan; this creates pressure in the direction of making large loans on easy terms.[54] Another factor influencing finance company policies, as in the case of commercial banks, is relations with dealers (and in some cases manufacturers). Dealer pressure, as well as the desire to maintain a high volume of lending operations, may very well create a presumption in favor of raising interest rates rather than tightening credit terms and lending standards in response to a rising cost of funds.

C. *Conclusions.* There is little clear evidence that consumer credit has been greatly affected by the credit restraint of the past two years. Credit terms (down-payments and maturities) have been very markedly relaxed at the same time that credit has become generally tighter and more costly. While this relaxation of terms is part of a trend extending back for many years, it is notable that the latest spectacular manifestation of this trend coincides with a period of credit restraint. It is true that by early 1956 there were some signs of misgivings about excessively easy terms and a tendency to slow down the movement toward further relaxation and even to move very slightly in the direction of restraint. In explaining such actions, however, lenders in many instances referred to the increased risk and the fear of losses rather than to the tight credit situation.[55] The consumer credit statistics do not show any clear signs of restraint: extensions of consumer instalment credit in 1955 amounted to $39.1 billion, exceeding the previous record by over $7.6 billion, while in 1956 extensions were even larger, amounting to $39.6 billion. Outstanding instalment credit increased by $5.5 billion in 1955 and by a further $2.5 billion in 1956.[56]

It is difficult to evaluate the potency of the effects of general credit controls on consumer instalment credit and expenditures financed therewith. There is considerable room for honest difference of opinion. The authors of the Federal Reserve staff study are quite cautious in their conclusions. While pointing to responses at both the wholesale and retail levels, they conclude by questioning "whether the response of the consumer credit area as a whole to changes in credit conditions, and in particular to general monetary restraint, is sufficient either in degree or in timing to facilitate a national economic policy directed toward sustained high and rising levels of activity without inflation."[57] Jacobs, on the other hand, seems quite firmly convinced that monetary policy can be highly effective in restraining consumer instalment lending by sales finance

[53] Part I, Vol. II, pp. 29-32.

[54] Part I, Vol. I, pp. 67-70.

[55] Part I, Vol. I, pp. 281-82; Part I, Vol. II, p. 72.

[56] *Fed. Res. Bull.*, Apr. 1957, XLIII, 452-55.

[57] Part I, Vol. I, p. 285.

companies. He places great emphasis on the tightening of the prepayment options available to finance companies when credit restraint forces them to turn to the long-term market and expresses the view that if the Federal Reserve is prepared to engage in open-market sales in the long-term market, it can strongly affect prepayment terms.

This reviewer, however, is inclined to agree with Earley's comments. As he says, the sales finance companies "have shown a remarkable ability to adjust to both the shifts in needs for their services and in the conditions impinging on their supply of funds. They have been able to finance an enormous growth in activity in recent years without any serious evidence of financing strain; and they have been able to roll with changing money and capital market conditions by shifting sharply and rapidly from one source of credit to another."[58] As to Jacobs' argument with respect to prepayment options, it would seem that nothing would prevent the companies from paying a high enough rate of interest to obtain the options they desire. And the low elasticity of demand for consumer credit should make it possible for them to pass along the increased cost to consumers without affecting demand very much.

Shapiro and Meiselman contribute some suggestions with respect to the role of consumer credit as part of the mechanism by which general credit controls exert their effects on the economy generally. In particular, they argue that the shift of sales finance companies from short- to long-term borrowing induced by credit tightening serves an important function in transmitting the effects of Federal Reserve policy to the long-term market. They even contend that if selective controls should succeed in exerting a stabilizing effect on the consumer sector, they might do so at the expense of eliminating an important force which tends to affect long-term interest rates in such a way as to stabilize investment in producers' durable goods.[59] This argument is difficult to accept. Surely if the Federal Reserve thinks that long-term interest rates should vary in the interest of stability, all it has to do is to give up its self-denying "bills-only" doctrine and engage in open-market operations in long-term securities. It does not have to rely on an indirect and uncertain effect by means of which business investment is stabilized *as a result of* instability in consumer spending. Moreover, if every dollar of additional consumer spending financed with funds borrowed in the long-term market induced a full dollar reduction in business investment, the net change in total spending would be precisely zero. Such a matching of increases and decreases is fantastically improbable; thus it seems that the presence of consumer credit institutions which switch in this way may contribute significantly to instability.

III. *The Question of Selective Controls*

A considerable part of the study is given to an appraisal of the arguments for and against selective controls over consumer credit.[60] While most of the arguments are familiar, some issues are raised that merit discussion.

[58] Earley, *op. cit.*, p. 420.

[59] Shapiro and Meiselman, *op. cit.*, pp. 304-06.

[60] The pros and cons of selective controls are summarized in Part I, Vol. I, Ch. 16, while Part II, Vol. II, presents the views of a number of economists. American experience with selective controls is discussed in Part I, Vol. I, Ch. 14, while consumer-credit regulation

A. *The Issue of Discrimination.* Many persons object to selective controls in general on the ground that they discriminate against certain individuals and groups and that they involve the monetary authority in the allocation of credit when its legitimate function is merely to control the total available supply.[61] Those who take this position usually stress the "impersonal" and "nondiscriminatory" character of general credit controls.[62]

Clearly the impact of any kind of credit control, whether general or selective, is concentrated mainly on those individuals and groups who use credit to finance their expenditures. Thus, businesses financing capital expenditures out of internal funds and consumers who buy goods for cash are likely to be little affected by changes in credit conditions.[63] Moreover, the effects of general controls on credit-financed spending are uneven, since not all such spending is equally sensitive to changes in interest rates and credit availability. If the economy (including credit markets) were universally highly competitive, it could be argued that the differential sensitivities of different sectors reflected the pattern of consumers' tastes and the variations in the productivity of real resources and did not result in discrimination in the economic sense. However, this hardly seems to be the case. As was suggested earlier, consumer spending financed by instalment credit is rather insensitive to changes in general credit conditions. This insensitivity seems to be due in large part to factors which are not especially associated with the efficient working of the price system.[64] For one thing, there is evidence that in many (perhaps most) cases consumer borrowers are quite ignorant of the cost of financing and are therefore incapable of taking such costs into consideration in making decisions concerning the use of consumer credit.[65] Moreover, it appears that consumers are to some degree shielded from the impact of changing cost and availability of credit by the institutional structure—banks and finance companies—through which credit is made available to them. In fact, there seems to be some basis for the argument that general credit controls discriminate *in favor of* consumer credit.[66]

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abroad is treated in Part I, Vol. II, Suppl. V. Different statutory approaches to regulation are discussed in Part I, Vol. II, Suppl. VI. Part III presents a sampling of the views of the consumer-credit industry on the subject of selective controls.

[61] See Milton Friedman, "Consumer Credit Control as an Instrument of Stabilization Policy," Part II, Vol. II, pp. 73-103, esp. pp. 87-95; E. C. Simmons, "Consumer Credit Controls and Central Banking," *ibid.*, pp. 112-38.

[62] The paper by Simmons (*ibid.*) contains an unusually dogmatic affirmation of this view.

[63] Interest as an opportunity cost might affect internally financed business investment, and personal saving might be affected to some degree by the rate of interest. But it is doubtful whether either of these effects is very important.

[64] As Smithies says, "The curious market described in Mr. Andersen's paper (*op. cit.*) can hardly be relied on as an instrument of perfect justice." Arthur Smithies, "Comment" (on paper by R. P. Shay), Part II, Vol. I, p. 69. See also R. C. Turner, "Comment" (on paper by Friedman, *op. cit.*), *ibid.*, pp. 103-11.

[65] Part I, Vol. I, p. 60.

[66] See Nadler, *op. cit.*, pp. 3-29, esp. pp. 20-23; R. P. Shay, "Consumer Credit Control as an Instrument of Monetary Policy for Economic Stability," Part II, Vol. II, pp. 37-68; Smithies, *op. cit.*, p. 69.

If this is the case, the use of selective controls, properly coordinated with general credit controls, might make monetary policy more effective by broadening the area of its impact while at the same time making its incidence more equitable. As I see it, at the present time general monetary policy has disproportionate effects on a few credit-sensitive sectors—smaller businesses which must rely heavily on borrowed funds for expansion, residential construction, some types of state and local government spending—while leaving many important sectors (including consumer credit-financed spending) relatively unaffected. This means that when credit is restricted in a period of inflation, the few credit-sensitive sectors must be quite harshly affected if the total impact is to be significantly large. Not only may this be inequitable, but it means in practice that credit controls must be applied so cautiously, in order to avoid excessive disruption (for both economic and political reasons), that they are frequently very slow to exert the desired over-all effects. If, by the judicious use of selective controls in areas where they are feasible, the impact of monetary policy could be broadened, it might be made both more effective and more equitable.

B. *The Management of Selective Controls.* It is possible to conceive of a number of objectives toward which selective controls might be directed.[67] However, the only objective likely to command much support under peacetime conditions is the promotion of general economic stability—full utilization of resources and stability of the general price level. Most economists would probably agree that it would be undesirable to use consumer credit controls to stabilize production or prices in particular sectors of the economy.[68] Inevitably, of course, the monetary authority, in adjusting credit terms, would be influenced by conditions existing in the particular industries most affected by the controls. For example, if (as was the case in 1956) the automobile industry was depressed at a time when the economy as a whole was experiencing inflation, it would probably be deemed unwise to tighten credit terms applicable to that industry. However, similar problems may arise with respect to general credit controls. If, during a period of inflation, certain of the sectors most responsive to general credit controls were relatively depressed, a general tightening of credit would appear to be an inappropriate measure. The so-called general controls are not so general after all, and cannot be so sharply distinguished from selective controls as is sometimes implied. Each control technique—general monetary policy, selective credit controls, various fiscal measures—has its peculiar incidence, which makes it appropriate under some circumstances but unsuitable under other conditions.

There may be occasions when, quite clearly, developments which are con-

[67] Some possible objectives are listed in L. V. Chandler, "Comment" (on the paper by Nadler, *op. cit.*), Part II, Vol. II, pp. 30-31.

[68] Smithies suggests (*op. cit.*, p. 71) that consumer credit controls may be a useful means of maintaining the proper balance between consumption and investment needed for steady growth. I doubt if our knowledge of the relevant relationships is great enough to provide guidance for the effective administration of controls designed for this purpose. In fact, there are probably many "proper" relationships between consumption and investment, depending on the attendant circumstances.

fined largely to one sector or industry threaten to destabilize the economy. If the sector responsible is quite insensitive to general credit controls, it might require such a drastic tightening of general credit to deal with the situation as to have a disastrous effect on other more sensitive sectors. Under these conditions, what is needed is a sharp-pointed tool that will reach the sector that is causing the trouble without disruptive effects upon other parts of the economy. The classic example of such a situation is the stock market boom of the late 1920's. The granting to the Federal Reserve of power to regulate margin requirements can be traced to this situation.

The notion that certain types of monetary controls are really general, nondiscriminatory, and do not involve any interference with the allocation of resources, while others are selective and discriminatory seems to me to be a tremendous oversimplification. The central bank must be—and every central bank is, in fact—cognizant of and sensitive to the impact of its measures not only on the economy as a whole but on particular sectors and industries. I do not believe there are any simple "rules"—relating to the quantity of money or other variables—that can provide adequate guides to monetary policy. It seems to me that there are no more dangers involved in entrusting selective controls over consumer credit to the Federal Reserve than are involved in its present credit control powers, and that the availability of such controls would provide greater flexibility in adapting monetary policy to the exigencies of the variety of situations that might arise. If such powers are granted, however, the mandate should specify that they are to be used to promote general economic stability.

C. *Administration and Enforcement.* Consumer credit controls of the Regulation-W type involve some very serious problems of administration and enforcement.[69] These problems are of quite a different character from those encountered by the Federal Reserve in connection with its administration of the traditional tools of general credit control. Effective control requires that the regulations be made applicable to lenders other than commercial banks, which takes the Federal Reserve outside the normal range of its activities. There are many ways of evading the controls, and evasion would doubtless be a much more serious problem under normal peacetime conditions than it has been in periods of war or national emergency to which controls have been largely confined in the past. Some contributors to the study, notably Chandler, base a rather strong opposition to selective controls in large part upon what they regard as intractable problems of administration.[70] It should be remembered, however, that there are other possible ways of employing selective controls. Earley, for example, suggests that the controls be applied at the wholesale rather than the retail level.[71] He suggests the establishment of variable collateral requirements on new short-term loans by banks to nonbank instalment financing institutions and possibly the application of similar controls to direct

[69] See Part I, Vol. I, Ch. 14, for a discussion of administrative problems that arose during the war and postwar periods when selective controls were in effect. A strong statement of the administrative difficulties is to be found in Chandler, *op. cit.*, pp. 32-36.

[70] *Loc. cit.*

[71] J. S. Earley, "Further Comment," Part II, Vol. II, pp. 151-56.

consumer instalment loans by banks. Sales finance companies, when they borrow from banks would be required to post with the regulatory authority (presumably the Federal Reserve System) collateral in the form of consumer instalment paper. By raising these requirements above 100 per cent, credit could be restricted in this area. In addition to controlling the quantity, qualitative controls could be applied by making consumer paper involving less than a specified down payment and greater than a specified maturity ineligible for use as collateral. This scheme is suggestive and indicates that it may be possible to find substitutes for controls of the Regulation-W type if these should prove to be difficult to administer and enforce. Until many such control schemes have been investigated, the problems of administration do not constitute a conclusive argument against selective controls. As Ruth Mack puts it, "In view of the variety of agencies that might be entrusted with the job of regulation, and the variety of means they could employ, it seems reasonable to assume that where there is a will there is a way."[72]

IV. *Concluding Comments*

The study serves a useful function in pulling together an extensive factual picture of the role of consumer instalment credit in the American economy, but it does not supply any startlingly new analysis. Most of the arguments, pro and con, regarding selective controls were familiar to all students of monetary policy. There is the same room for legitimate difference of opinion that there was before the study was prepared.

The length of the study gives the casual reader a somewhat exaggerated impression of the complexity of the subject. There is a great deal of duplication, arising in part from the way in which the work was organized and prepared. Much of the material, while interesting and useful, has little relevance to the question of selective controls toward which the study is supposedly oriented. Actually there is considerable agreement concerning some of the basic issues. For example, most of the participants seem to feel that consumer credit makes at least a modest contribution to economic instability and that it is rather insensitive to the general instruments of monetary policy.

Some of the material in the study has not been referred to in this review, except incidentally. The opinions of the consumer credit industry (Part III of the study) are of some interest. As might have been expected, the vast majority of the industry is opposed to selective controls. Some of the observations made, however, even by those opposing regulation, seem to support the view that consumer credit is insensitive to general credit controls.[73] The survey of new car purchasers for 1954-55 (Part IV) contains much interesting material concerning terms of financing, the use of credit, and the attitudes of buyers. Some valuable contributions are made to our knowledge of the factors (such as income status, liquid-asset holdings, home ownership, age and family status, etc.)

[72] R. P. Mack, *ibid.*, p. 151.

[73] For example, see the statements by the Bank of America National Trust and Savings Association (p. 37), The Bank of California (p. 53), the Bowery Savings Bank (p. 54), The Easton National Bank (p. 55), the First Pennsylvania Banking and Trust Company (p. 56), Bankers Commercial Corporation (pp. 91-95).

associated with the use of consumer credit.[74] This information is potentially useful as an aid in estimating the incidence of various policies, such as selective credit controls. A paper by J. S. Atlee contains some interesting suggestions concerning the kinds of data that are needed for a satisfactory analysis of the effects of consumer credit.[75]

Broad as the scope of the study is, it seems to me that it is not sufficiently comprehensive to provide a conclusive answer with respect to the wisdom of selective controls. There is need for intensive study of the effects of our present system of general credit controls on various sectors of the economy, such as investment by business (large and small) in fixed capital and inventories, residential construction, state and local government spending, and so on, before we have an adequate basis for appraising its incidence and effectiveness. If our present monetary controls exercise potent and fairly well diffused effects on most sectors, it may not be too serious a deficiency if one sector such as consumer credit is not much affected. If, on the other hand (as I suspect), many important sectors are relatively insensitive to these controls, it becomes important to find ways to strengthen monetary policy and broaden its impact, and selective controls in some of the strategic sectors, such as consumer credit, become eligible for serious consideration.

[74] Part I, Vol. II, Suppl. III; J. B. Lansing, E. S. Maynes, and M. Kreinin, "Factors Associated with the Use of Consumer Credit," Part II, Vol. I, pp. 487-520; Tobin, *op. cit.*; Katona, *op. cit.*

[75] J. S. Atlee, "Consumer Credit Expansion: Macroeconomic Analysis and Data Requirements," Pt. II, Vol. I, pp. 254-93.

PROFESSOR COLE'S *HISTORY OF SOCIALIST THOUGHT*

A Review Article

By PAUL M. SWEEZY*

This is undoubtedly G. D. H. Cole's *magnum opus*,[1] conceived on a grand scale, executed with great skill and learning, and destined to take a permanent place among the classics of socialist literature. There is nothing even remotely comparable to it in English: it fills a yawning gap in the writing of modern history, of which economists, political scientists, and sociologists, no less than historians themselves, have long been painfully aware.

I hasten to add that the volumes before us (numbered I through III but comprising four physical volumes, the last being divided into two "parts" each between its own covers) by no means bring Professor Cole to the end of his task. He promises us a further "volume" on the period after 1914, and, if he carries on at the level of detail and comprehensiveness established so far, this final volume is quite likely to consist of two or three or even more separate parts. It is altogether desirable that it should be so. One of Cole's greatest strengths as an historian of socialism is that he himself has long been a part of the movement and has a fine "feel" for its aims and problems and controversies. This quality should manifest itself to best advantage in relation to the last five decades, for it is during this period that Cole has played a continuously active role in the British and international socialist movements. There is no one living today who is better qualified to understand and interpret for others this latest phase in the development of world socialism.

This is not to argue that Cole, any more than anyone else, is ideally qualified for the difficult assignment he has set himself. As he tells us in the prefaces to Volumes I and II, he is not a linguist and has had to rely very largely on English and French sources. For the period covered by the first volume, this is a minor handicap, since most of the important early socialist writing is in these two languages. But it becomes more serious as the socialist movement spreads; and by the time the 20th century is reached one becomes increasingly aware that a growing part of Cole's narrative is based on second-hand sources. This is, however, far from being a fatal defect, for Cole has not only made judicious use of the second-hand sources but has also supplemented them from his own observations and drawn extensively on the first-hand knowledge of many friends and acquaintances throughout the international socialist movement. A perhaps more serious deficiency, in an historian of thought, is Cole's

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[1] *A History of Socialist Thought*. By G. D. H. COLE. Vol. I: *The Forerunners, 1789-1850;* Vol. II: *Marxism and Anarchism, 1850-1890;* Vol. III: *The Second International, 1889-1914*. (New York: St. Martin's Press. Vol. I, 1953. Pp. xi, 346. $5.00. Vol. II, 1954 Pp. xi, 482. $6.00. Vol. III in 2 Parts, 1956. Pp. xvii, 1043. $16.00.)

characteristically English impatience with abstract ideas and complex chains of theoretical reasoning. This quality shows most clearly in his treatment of Marx. It is not that Cole, like so many critics of Marx, displays a special animus against his subject. On the contrary, he obviously has a great admiration and liking for Marx, but I am afraid he has not succeeded nearly as well as he has in the case of numerous other socialist thinkers in understanding what Marx was trying to do and presenting to readers the essence of Marx's message. I shall return to this subject below.

These weaknesses—and there are others which will be commented on in due course—should not, however, be allowed to obscure the magnitude of Cole's achievement. He chose an exceedingly broad canvas on which to paint, and he was perfectly aware, as he says in the preface to Volume III, that he could not "hope to have avoided making many mistakes, or faulty judgments"—but he immediately adds, "though I hope I have got most of the essentials broadly right." The point is that this is precisely what he has done, "got most of the essentials broadly right." And this is an achievement beside which the most dazzling displays of scholarly virtuosity pale into insignificance. After you have read these volumes, you know what socialism is and what it isn't; you understand its inner turbulence and its outer struggles; you know who the great socialists have been and how they have been related to each other; above all, you grasp the inexhaustible vitality of the movement and understand why, despite innumerable failures and setbacks, the entire history of socialism has been a record of continuous rebirth and inexorable advance.

This may be taken to imply that Cole's work is more than a history of socialist *thought*, and indeed it is. True, his original intention, as explained in the preface to Volume I, was to limit himself narrowly to the field of intellectual history:

> I wish to make it clear that this book is not meant to be a history of Socialism, but only of Socialist *thought*, with such references to actual movements as are necessary to explain the thought. Indeed, the writing of a comprehensive history of Socialism would be an impossible task for any single author, and would have to be on a much bigger scale than anything I have in mind to write—or should have, even if I possessed the requisite knowledge.

Fortunately, Cole did not permit himself to be hobbled either by this initial statement of purpose or by the recognition of his own limitations. The first volume, to be sure, is intellectual history of a largely conventional sort, but thereafter the narrative becomes increasingly broad and complex and conforms less and less to any definable pattern. There is a good deal of political history in Volume II (for example, the admirable chapter on the Paris Commune and the treatment of the *Kulturkampf* and the antisocialist laws in Germany), and in Volume III the development of trade unions and cooperatives, often non- or even antisocialist in their orientation, claims an increasing share of the author's attention. Moreover, of the literally scores of personalities passed in review in the later volumes, Cole is obliged to say of an increasing proportion that they contributed nothing or next to nothing to socialist thought. The

country-by-country survey contained in Part II of Volume III could much more accurately be entitled a history of national working-class movements than a history of socialist thought.

There is, of course, a reason, quite apart form the author's personal predilections, why a book which set out to be a history of socialist thought should progressively escape from the confines of its title. Up to about the middle of the 19th century, socialism existed largely in the minds of a relatively few original and often brilliant thinkers—a situation made-to-order for the intellectual historian. But after that, socialism increasingly takes on institutional forms, and its leaders are more likely to be organizers or politicians than thinkers. One can go further and assert that after 1850 the scope for creative socialist thought was in a real sense narrower than it had been. It is hardly an exaggeration to say that all possible thoughts about the shape of the socialist society of the future had already been had by 1850: thereafter they simply reappear in new combinations and permutations. Original socialist thought becomes increasingly concerned with analyzing the existing social order and devising appropriate means of transforming it: in other words socialist thought more and more merges into social science—a much broader and less tractable field for the intellectual historian to plow than the system-building of St. Simon, Fourier, Owen, and the rest of the early socialists. Finally, as socialism takes on organizational forms and spreads to new countries and continents, it plays an increasingly important role in shaping the whole course of human history and becomes correspondingly more difficult to isolate for purposes of description and analysis.

I am not suggesting that what Cole has written is not a history of socialist thought, but that it is a good deal more than that, and necessarily so. That it falls short of being the comprehensive history of socialism which he disclaims either the intent or the knowledge to write is an entirely different matter. The whole work might perhaps most aptly be described as an extended essay in the history of socialism: as such it is both a highly personal product of its author and a precious source of knowledge and insight to its readers.

It is not surprising that Cole should be at his best in dealing with the development of British socialism. Author of several standard works on the history of the British working-class movement, he possesses an encyclopedic command of the facts, a great sympathy for his own political and intellectual forebears, and an incredibly sure touch in placing them in the total picture of which they form component parts. Godwin and Paine, Robert Owen, the Ricardian socialists, the Chartists, Marx's collaborators in the First International, H. M. Hyndman and the Social Democratic Federation, William Morris and the Socialist League, Shaw and the Webbs and the rest of the Fabian essayists, John Burns and the New Unionism, Keir Hardie and the Independent Labour Party, Ramsay MacDonald and Arthur Henderson and Philip Snowden of the early years of the Labour Party—all these and many more are passed in review, brought to life, and put into the right relation to each other and to the movement as a whole. In every case, Cole does a good job and in some a superb job. I think I can claim to have studied the history of British socialism with more than average diligence and interest, and yet I

found fresh material on nearly every page of Cole's treatment. To mention but a few samples: The analysis of the re-emergence of British socialism in the 1880's and 1890's, and especially the role played by Chamberlain and the Irish question, is first-rate. William Morris apppears not as the backward-looking medievalist he is so often painted but as one whose insights into the dilemmas of the coming socialist society were both brilliant and profound. I had a feeling after reading Cole on Morris not only that I wanted to reread Morris but that I would find in him clues to some of those difficult and disturbing problems which the emerging socialist societies of the 20th century have yet to face up to, let alone solve. Ramsay MacDonald, though described without rancor or malice, emerges as a truly sinister figure, not because of ill will or bad intentions but because of stupidity and vanity. And Arthur Henderson, the real architect of the present-day Labour Party, is seen as the very embodiment of the strengths and weaknesses of the entire British working-class movement. To be sure, I found myself in disagreement with Cole from time to time in his treatment of particular doctrines or thinkers. For example, I think he exaggerates the extent of the direct influence exercised on Marx by some of the Ricardian socialists. In rationalizing the Fabians' economic theories, he overlooks or minimizes the very confusions and contradictions which are most characteristic of their thought, particularly in connection with the theories of rent and profit. His discussion of the crucially important doctrine of gradualism as it appears especially in the *Fabian Essays* fails to bring out, or at least sufficiently to emphasize, that there are in reality two distinct ideas of gradualism which have very different political implications—one, resembling the "creeping socialism" doctrine so dear to present-day American conservatives, holds that socialism is coming into being quite regardless of the will or actions of political parties and leaders; the other also holds that the advent of socialism will be gradual, but that it will come at all only as the result of the conscious acts and policies of an organized socialist party.[2] But all these disagreements are on relatively minor issues and in no way detract from my admiration for Cole's masterly treatment of the rich heritage of the movement whose most distinguished representative he now is.

Cole's skill and insight as an historian of anarchism, which at least to the end of the 19th century was inextricably intertwined with socialism, are perhaps more surprising. He both sees and sympathizes with the point of view of all save the extreme nihilists, and yet he understands the hopeless impracticality of their schemes. As a result he gives them full credit for their insights—in the case of Bakunin, perhaps a little more than full credit—and he rightly assigns to them an important, if indirect, role in shaping socialist doctrines. (In this connection, Cole missed an important point in not stressing the close relation between anarchist theory and the Marxian doctrine of the withering

[2] There is one respect in which it seems to me that Cole signally fails to give the Fabians their due. He mentions Bernstein's association with the Fabians during his years in England, and once speaks of "Webb and his disciple Bernstein." But it seems to me that the link deserves considerably more attention in a history of socialist thought. Not only does it establish a close relation between British and continental reformism, but more important it shows that Fabianism was the direct inspirer, through Bernstein, of ***theoretical*** (though not practical) German Revisionism.

away of the state: in a very real sense, this doctrine was *the* Marxian answer to the anarchists.) Cole has too much commonsense to *be* an anarchist, but he shares many of their values and this helps him to deal effectively with their work. After reading these pages one understands better why Cole himself made his first public appearance as an advocate of guild socialism, that special British brand of anarcho-syndicalism which flourished for a few years prior to the first world war.

In his treatment of Marx and Engels Cole is, I think, much less successful. References to, comments on, and partial analyses of Marxian doctrine occur pretty much throughout the whole work, but sustained interpretative effort is largely concentrated in three chapters totaling some 80 pages (Ch. 22 and 23, Vol. I, and Ch. 11, Vol. II). The first of these, dealing with the *Communist Manifesto,* has little to say that hasn't been said many times before and calls for no particular comment here. I could only wish that Engels' share in authoring the famous document had been given more adequate recognition: Cole doesn't even mention Engels' draft in question-and-answer form,[3] a remarkable work in its own right which shows how completely the content, if not the form, of the Manifesto was a joint product.

It is when we reach the chapter on "Marx and Engels—Marxism to 1850" that my serious reservations begin. The level of the analytical (as distinct from the purely descriptive) parts of this chapter struck me as being about that of many student discussions of Marxism I remember from 20 to 25 years ago at a time when the whole subject was almost entirely new to Anglo-American universities. Cole propounds page after page of propositions and questions in the manner of a don at a tutorial session, and most of them seemed to me either pointless or based on a quite superficial reading of Marx and Engels. For example, Cole asserts that "Marx seems to be assuming that the 'powers of production' progress independently of men's wills," and then asks, "But do they?" Of course they don't, but Marx never dreamed of assuming any such thing. A discussion that begins this way is bound to lead nowhere. Or again:

> "Men make their own history," Marx asserts, in addition to asserting that the productive relations into which men enter, and which shape their history, are entered into independently of their wills. Can both statements be true? Only if men are conceived as making their own history under a law of necessity imposed upon them, which governs the progress of their knowledge and of its application to the practical arts of life. Only if there is a necessity which is the universal mother of invention—so that whatever men originate is to be regarded as the necessary response to the conditions which pose the problem. Marx, I think, believed that there was such a necessity. . . .

This is a complete mystification of perfectly clear ideas which stand at the very heart of Marx's theory of society and history. What is "imposed" upon men, according to Marx, is not some extraneous "law of necessity" but their own past in the shape of a socio-economic order with certain class relations,

[3] Available in English under the title *Principles of Communism,* translated by Paul M. Sweezy (New York, 1952).

institutions, ideologies, and so on. Every generation is born into a world it never made, and what it accomplishes is strictly limited by the real alternatives open to it. It follows that the more man understands, the more history he can make. But there is no law of necessity involved, only the brute (but still relative) interactability of the physical and human environment.

When Cole comes to deal with *Capital* in Volume II, the result is, if anything, even less helpful. Though he recognizes that Marx was trying to do something different from his neoclassical contemporaries, Cole seems never quite able to make up his mind what that something was, nor to apply to Marx standards of judgment which are at bottom other than those which orthodox academic economists have been applying at least since Böhm-Bawerk. The result is that Cole can see in the first nine chapters of *Capital*, in which Marx develops his theory of value and surplus value, nothing but a gigantic exercise in metaphysics, designed to prove something that was obvious from the outset.

To quote:

> The whole Marxian theory of value, stripped of its Ricardian trappings and of the complications into which Marx was led by his attempt to refine upon the conclusions of his anti-capitalist predecessors, amounts to the very simple assertion that under capitalism the owning classes appropriate a part of the product of industry and agriculture without working for it, and that this involves the exploitation of the subject labour class.

And again:

> Was it . . . Professor Tawney who said that he did not need the theory of surplus value to tell him that the capitalists exploited the workers? Yet that, in effect, was what the theory did proclaim—that, and nothing besides.

In keeping with this view, Cole interprets Marx's discussion of the relation between values and prices in Volume III of *Capital* to be a sort of shame-faced admission of the unreality of the theory of Volume I and an attempt to substitute, by the back door as it were, a cost of production theory similar to that expounded by John Stuart Mill. Cole, for his part, implies that Marx would have done better to scrap the whole classical approach and adopt the new marginalist theories of Jevons and Menger (Carl Menger, by the way, not Anton as Cole writes, doubtless by a slip of the pen, on page 276 of Volume II). Marx's failure to do so, in Cole's view, robs this part of his work of any claim to be considered scientific, though he concedes that Marx "believed in his own system and put it forward in entire good faith, quite unaware that its claim to be 'scientific' was really bogus, and that it was not even a usable hypothesis that could be tested by the facts, but a call to action based on unproven beliefs."

In all this there is unfortunately no recognition of themes which Marxian literature has increasingly stressed in recent years. The first nine chapters of *Capital*, it is now widely recognized, are not primarily concerned with exchange values or prices in the sense of either classical or neoclassical economics but rather with what today might be called economic sociology. Beginning from an analysis of "The Commodity," Marx attempts to show that an exchange

economy is one in which producers work for each other without being immediately aware of the fact. Value, which appears as a relation between things, is in reality a relation between people; the law of value is the regulator of an atomistic economy which is both unplanned and uncontrolled by conscious human will. When, in such a society, the means of production come to be monopolized by a small class of owners, labor power itself becomes a commodity and the great majority of human beings come directly under the sway of the blind law of value. This is a system in which, to use the Emersonian phrase, "things are in the saddle and ride mankind." Exploitation is masked (from both exploiters and exploited) as fair exchange. The good fortune of some, the deprivation of others, the calamities which may be visited upon all—these appear as but the outcome of the operation of natural laws over which man has no control. Alienated from and dominated by the products of his own knowledge and labor, man is progressively depersonalized and dehumanized. To lay bare these relations, to expose the reality behind the façade of market prices, to show up the capitalist system as a *particular form* of exploitation obeying specific laws of its own—these are the great objects of the early chapters of *Capital.* An historian of socialist thought need not approve of them or regard Marx's effort as successful, of course, but it does seem that at this late date there is little excuse for failing so completely as Cole does to grasp the range of topics with which Marx was grappling or to appreciate the reasons why this aspect of Marx's theory has exercised such a fascination for succeeding generations of social theorists.

I do not mean to suggest that there is nothing of interest or value in Cole's chapter, "Marx and Engles—*Das Kapital* and *Anti-Dühring*" (Ch. 11, Vol. II). Much of the narrative is up to Cole's usual high standard, and many of the detailed criticisms are well taken. But on the whole, I must confess to a feeling that his interpretation of the founding fathers of Marxism reflects a state of knowledge, or rather of ignorance, prevalent in Anglo-American academic circles some two to three decades ago. Since then, even academic Marxology (to use a term of Schumpeter's) has undergone great development. As a history of socialist thought, Cole's work is the worse for its author's failure to keep up.

I suppose it is not only a prerogative but also in a sense an obligation of a reviewer to comment on those parts of an author's work with which he can claim some special familiarity. With this in mind, I would like to conclude with a few remarks on Cole's treatment of American socialism.

As far as the 19th century is concerned (Ch. 13, Vol. II), Cole follows traditional lines. But when it comes to the period after the formation of the Socialist Party in 1901 (Vol. III, Pt. II, Ch. 21), he raises questions which go far beyond the range of the conventional history books, questions which moreover are in a sense crucial to our interpretation not only of American but of world history during the past half century. Cole opens the chapter with a recital of the impressive progress made by the Socialist Party in the years 1901-1912. It grew from very small beginnings into a nationwide organization with 150,000 individual members and a voting strength of nearly a million. Its leaders, despite bitter factional fights, were convinced that "the tide was

flowing strongly in favour of Socialism in the United States as well as in Europe, and even that the victory of Socialism was only a matter of a few more years of successful Socialist propaganda"—and this view was by no means confined to the Socialists themselves.

> Yet within a very few years of this rapid and confident advance the American Socialist movement lay in ruins: nor has it to this day ever been effectively rebuilt. This decline and fall has been attributed to the influence of the first world war; but in fact the decay had set in and had gone a long way before the war began, even in Europe. In 1913 the American Socialist Party was already tumbling down fast from the height it had reached in 1912: nor was any alternative organization even beginning to take its place. . . . Evidently it is of the greatest importance to discover why these things happened—both why American Socialism appeared to be making such swift headway during the early years of the present century, and why it suffered eclipse.

This is the problem Cole poses; and, after a lengthy descriptive and narrative detour, he returns to it and presents his own solution, summing up as follows:

> I have been trying to show why, even after the epoch of "free land" had ended and the "frontier" had been in effect closed, there was still no room in the early years of the present century for the growth of a really powerful American Socialist movement. The outstanding reasons, as I see them, are two—the absence of the political motive which rallied the working classes of Europe in hostility to autocratic, militaristic states, and the division of the working class into a privileged and an unprivileged group, between which was a wide gap both in standards of living and ways of life, including the barrier of language. This second factor rendered impossible in America the half-way solution of alliance between the Socialists and the Trade Unions in a Labour Party prepared to champion the claims of the whole working class. It did this fully as much as the first factor ruled out the possibility of a Social Democratic Party on the German model.

It will be seen from the juxtaposition of these two passages, I think, that Cole never really answers his own original questions—a fact which may be obscured from the reader, and perhaps from the author himself, by some 40 pages of intervening text. No doubt the factors adduced by Cole—the existence of political democracy in the United States, and the division of the working class—were important, and they might be taken to be an adequate explanation of a slower development of socialism in the United States than in Europe. But they obviously cannot be taken to explain why the American socialist movement grew with extraordinary rapidity for a little over a decade and then even more quickly collapsed. Clearly, up to a point there must have been strong forces *favoring* the growth of socialism, and these forces must have ceased operating with dramatic suddenness.

Here is a first-class historical mystery, and it is a great merit in Cole to have formulated it so clearly and concisely, even if it remains for others to unravel it. This is, of course, not the place to attempt to analyze the problem in any

detail, but I may perhaps be permitted to end with a few tentative suggestions for anyone who may be minded to tackle the job.

In the first place, I think it is definitely wrong to date the decline of the Socialist Party from 1912. It is true that the Party passed through a severe crisis in that year, but no one should know better than Cole that crises and splits are endemic to all, or nearly all, political movements and that to interpret a given crisis, *ex post,* as the starting point of a fundamentally new trend is, to say the least, a highly questionable procedure. The fact is that no great changes took place *outside* the socialist movement in 1912, and in the absence of such changes it would be natural to assume that the movement would in due course recover from its internal difficulties and resume the advance of the immediately preceding period.

The same cannot be said of the war years, however. Here it is altogether reasonable to assume that the severe internal crisis which was precipitated by the outbreak of war was indeed accompanied by external changes which decisively altered the conditions under which American socialism had previously flourished. If we can identify these changes we should be in possession of the clue to the mystery.

Even so, the solution to the problem is by no means obvious, and I would not be surprised if in seeking it we should be led to see certain aspects of American economic history in a new light. We are, for example, accustomed to thinking of the period before the first world war as a sort of golden age of capitalism antedating all the troubles with which the present generation of economists is so familiar. Actually, I think this is at the very least doubtful and that a more nearly correct view would be that put forward by Veblen in *The Theory of Business Enterprise* (1904), namely, that since the 1870's "chronic depression has been the rule rather than the exception in business"—a state of affairs which lasted, with the usual ups and downs due largely to extraneous causes, until about a year after the outbreak of war in Europe.[4] The first world war, however, was an extraneous cause of an altogether unprecedented magnitude, and its direct and indirect stimulating effects lasted, with one sharp but relatively brief interruption, for nearly a decade and a half.

If this analysis is accepted, quite a number of things would seem to follow. The recurring hard times of the closing decades of the 19th century would be expected to prepare the ground for the kind of rapid growth of a socialist movement which actually took place between 1900 and 1912. The 1912 crisis in the Socialist Party can then be interpreted as a normal growth phenomenon, and we can surmise that if the more severe depression that was clearly beginning in 1914 had run its course, the Party would soon have recovered and resumed its advance. What actually happened, however, was that at the very same time that the Party split into pro- and anti-war factions, an era of un-

[4] So far as I know, no economist, contemporary or later, ever paid any attention to Veblen's "chronic depression" theory. This is not due to its having been put forward in an offhand or casual manner: the fact is that it occupies a prominent place in *The Theory of Business Enterprise.* I should add, however, that I have not searched the literature with this question in mind.

precedented prosperity opened. It was this prosperity, and not the existence of political democracy or divisions among American workers, that smothered the Socialist Party and relegated the movement for a long time to a peripheral role in American life.

I think it can be shown that a theory along these lines can be successfully extended to account for the fate of American socialism in more recent decades, but this is obviously not the time or place to attempt to do so. I hope, however, that an occasion to take up these problems again will soon present itself, and I can think of none more suitable than the eagerly awaited publication of Cole's concluding volume.

COMMUNICATIONS

External and Internal Public Debt

A new approach to the public debt arose from the budgetary implications of the great depression and the Keynesian "revolution" in economic thought. Central to this approach, which remains the current orthodoxy, is a fundamental conceptual distinction between internal and external debt. The internal debt is not burdenless because of the transfer difficulties,[1] but aside from these it places no aggregate pressure on the economy. The alleged existence of such pressure stems from the falsely drawn analogy between the individual and the public economy. The phrase "we owe it to ourselves" or something quite similar characterizes most modern arguments. In part through neglect, but more often through explicit statement, the current analysis supports the traditionally accepted vulgar views in regard to external debt.[2]

In this note I propose to re-examine this one aspect of the currently orthodox debt theory. An extension of the theory to the full-employment setting of the postwar period reveals that serious gaps and errors are present. Identical policy implications for debt policy, even in depression, may be derived from an analysis which is both more correct and more general.

The fundamental error in accepted debt theory is methodological. It consists in a failure to define properly the alternatives subjected to comparison.[3] A typical way of stating these alternatives is the following: If a given state or community could be confronted with two alternative situations identical in all respects save that in one an internal debt service charge is present while in the other such a charge is absent, the first is obviously to be preferred.[4] The difference in the desirability of the two situations is widened if the debt is held externally rather than internally. It is equally clear that if a debtor community were to be faced with one of two alternative situations identical

[1] Wright, Ratchford, and Meade were instrumental in forcing a recognition of the transfer burden. See D. M. Wright, "The Economic Limit and Economic Burden of an Internally Held National Debt," *Quart. Jour. Econ.*, Nov. 1940, LV, 116-29, and "Moulton's 'The New Philosophy of the Public Debt,'" *Am. Econ. Rev.*, Sept. 1943, XXXIII, 573-90; B. U. Ratchford, "The Burden of a Domestic Debt," *Am. Econ. Rev.*, Sept. 1942, XXXII, 451-67; J. E. Meade, "Mr. Lerner on 'The Economics of Control,'" *Econ. Jour.*, Apr. 1945, LV, 47-70.

[2] For a characteristically clear statement, see A. P. Lerner, "The Burden of the Public Debt," in *Income, Employment, and Public Policy: Essays in Honor of Alvin H. Hansen* (New York, 1948), pp. 255-75.

[3] K. E. Poole senses this error in current public debt analysis, but he does not extend his discussion. See his *Public Finance and Economic Welfare* (New York, 1956), pp. 587-88. Ragnar Frisch has recently made a similar methodological criticism of Hotelling's tax analysis. See *Econometrica*, July 1956, XXIV, 311.

[4] This is precisely the comparison employed by Meade (*op. cit.*, pp. 62-63). Meade's comparison is used without criticism in E. D. Allen and O. H. Brownlee, *Economics of Public Finance*, 2nd ed. (New York, 1954), p. 135.

in all respects save that in one the public debt instruments are externally owned while in the other these instruments are domestically owned, the second of these alternatives is deemed preferable. On this simple logic the external debt would seem more burdensome on the community as a whole than the internal debt of like amount.

Alternatives of the sort mentioned above cannot, however, exist in the real world, actually or conceptually. The compared situations cannot possibly be identical in *every other* respect than debt ownership, and the analysis which overlooks or ignores the other necessary differences must embody serious error.

In order to define properly the realizable alternatives for comparison, it is necessary to consider them as of the moment of initial decision or choice. The argument is more direct if we limit it to the external-internal loan comparison, that is, if we assume that the decision to borrow has already been made. It should be emphasized, however, that the logic is equivalent in application to the internal debt-no debt case. I shall assume that the state is faced with an unavoidably large and abnormal expenditure. I shall also assume initially that this expenditure is completely wasteful. This allows the whole question of the productivity or unproductivity of the public project to be deferred until a later point in the analysis. Finally, I shall assume that the economy is characterized by reasonably full employment of its resources. This assumption will also be relaxed later. The public expenditure is to be financed by a public loan. Financing by means of an extraordinary tax levy or by inflation has been ruled out. The only decision concerns the form the loan will take; shall the government debt instruments be marketed domestically or in foreign countries?

If the loan funds are secured from internal sources, the public expenditure will be financed, in the main, out of current domestic savings which presumably could have been, and would have been, invested productively elsewhere in the domestic private economy.[5] The community's private capital stock is reduced, and future private income streams are correspondingly lowered.

If the loan is floated externally, that is, if the state sells its bonds in foreign markets, the public expenditure is financed out of foreign savings. The domestic privately employed capital stock is not affected; current incremental additions to this stock are not drawn into government security markets. Therefore, as compared with the internal loan situation, the private income stream over future time periods is higher. To this higher income stream there must, of course, be attached a drainage necessary to service the external debt.

It cannot be overemphasized that the internal and the external debt *cannot* legitimately be compared on the assumption of an equivalent income stream in the two cases. The gross income of the community in any chosen future time period cannot be thrown into the *other respects* which are assumed identical and neglected. The external debt must allow the community to receive a higher gross income in the future, quite apart from any consideration of the productivity of the public expenditure financed.

[5] In so far as the sale of government securities increases the rate of interest, some effect on the saving-consumption pattern will result. Some of the loan funds might in this way be drawn from current consumption spending.

Once this simple fact is recognized, the choice between the two debt forms is somewhat more complicated than the current orthodoxy implies. The community must compare one debt form which allows a higher income over future time periods but also involves an external drainage with another debt form which reduces the disposable income of the future but creates no net claims against such income. The choice must hinge on some comparison of the rates at which the required capital sums originally may be borrowed.

If we may neglect distributional considerations, and, more importantly, if we neglect the frictional or second-order effects of making the interest transfers, the community should be indifferent between the two loan forms if the external borrowing rate is equal to the internal rate of productivity on capital investment. The latter neglect obscures important aspects of the problem, and I shall discuss it at some length later, but it is useful to proceed at this stage on the assumption that the making of international transfers is no more difficult than the making of internal transfers.

The analysis is readily extended to the other possible situations. If the internal or domestic rate of productivity on capital investment exceeds the rate at which funds may be borrowed externally, the community will be better off if it chooses the external loan form.[6] In the third possible case in which the internal rate of return falls short of the external borrowing rate, the community will be worse off with the external than with the internal debt. Net income of the community after debt service will be lower, and the external debt will impose a "differential" burden. But it is noted that such a burden is no different from that which would be imposed by the internal loan in the situation mentioned immediately before this one. The differential burden arises, not from the locational source of the loan funds, but from the fact that the community has not chosen the most "economic" source. Under the "equal ease of transfer" assumption, it will always be advantageous to the community or the government to borrow in the most favorable market.

This "equal ease of transfer" assumption may appear to remove the fundamental elements of the problem. That this is not really the case may be illustrated by reference to the problem of state and local government debts. Such debts are normally classified as "external." Yet there is no apparent "transfer problem" in the Keynes-Ohlin sense involved in making the interest payments on these obligations. Such interstate and interregional transfers are presumably effected as smoothly as are the purely "internal" transfers required for servicing the internally held national debt. These results stem, of course, from the existence of the common monetary system and the comparatively free resource-mobility among the separate regions of the country. But for the individual state, the choice between loan forms should be dictated purely by market criteria.

This illustration should suffice to indicate that the problem of transfer is a second-order one when the distinctions between external and internal debt

[6] This conclusion holds even when it is recognized that some of the internal loan funds may be drawn from consumption spending (see footnote 5). All that is required here is that the present value of future consumption be computed on the basis of the market rate of interest.

are considered. No attempt need be made to minimize the possible differences in the two cases when genuinely international debt is compared with internal debt. But the point is that such differences arise solely from the institutional framework represented by the separate national monetary and economic institutions. These are not the differences which the currently orthodox debt theory has employed in making the external-internal debt distinction. The fact that the external debt involves a drainage out of the domestic income stream is *not* the reason why it may be more burdensome.

Let us now examine the transfer problem in somewhat more detail and see how it might serve to modify the conclusions reached. A transfer problem is created by the necessity of servicing either the internal or the external debt. In so far as the purchase pattern of those taxed to pay the debt interest differs from that of domestic bond-holders in the first case and from foreigners in the second, some shifting of resources must take place.

In a world with freely fluctuating exchange rates, the international and the internal transfer problem would be substantially identical. For example, if Canada should decide to undertake a large-scale program of public borrowing, it would make little difference whether the bonds were sold in Canada or in the United States. The guiding principle should be that of the market. The comparison with the domestic debt is somewhat more direct if we assume the existence of an international monetary standard with fixed exchange rates and international price flexibility. Here too the international transfer need be no more difficult than the domestic transfer. To be sure, the debtor community will find it necessary to impose deflation in order to surmount the balance-of-payments difficulties created by the necessity of transferring funds abroad. The point to be emphasized here is that the servicing of an internal debt requires that a similarly severe deflationary effect be imposed automatically on the "taxpayer" sector of the domestic economy.[7]

The world in general is not characterized by either freely fluctuating exchange rates or by an international monetary standard. Thus when international loans are actually considered, the "transfer problem" in its classical form may arise. And here the difficulties of making the external transfers may be significantly greater than those involved in making purely internal transfers. This places some premium on the internal as opposed to the external loan. In many cases the borrowing community cannot effectively control the magnitude of the real-income transfer in the external loan case. But it must be emphasized that this is the only valid reason for the making of any sharp conceptual distinction between the two loan forms. This "transfer problem" difference may be of decisive importance, but at the more fundamental level of comparison with which this note is primarily concerned, it represents an

[7] *Cf.* August Lösch, "A New Theory of International Trade," *Internat. Econ. Papers, No. 6* (New York, 1956), pp. 50-65. It is conceptually possible, either under fixed or flexible exchange rates, that extreme values for the elasticities of demand for imports and for exports could prevent any transfer of income abroad consistent with any sort of international equilibrium. Although much has been made of this possibility during recent years, it remains a hypothetical model which has never been observed to occur. But, perhaps more important, it should be noted that similar extreme values for certain coefficients in the various sectors of the domestic economy could produce like results.

adjustment factor only, and it should not be allowed to obscure the underlying criteria for public loan policy.[8]

The above conclusions have been reached on the assumption that the public expenditure program is completely wasteful. The imputation of productive returns to state expenditure will not modify the analysis in any way. This will serve only to determine whether or not future generations will be made better or worse off by the borrowing operation.

The "new" approach to the public debt is directly related to the budgetary aspects of the new economics. This serves to explain, in part, the incompleteness of the approach and its bias against external debt. Discussion of the public debt in recent years has been conducted almost entirely in terms of monetary debt obligations, and little attempt has been made to separate the real and the monetary sides of the debt problem. If the government borrows in a period when there exist unemployed resources, it is clear that the alternative sacrificed is of zero value to the economy in aggregative terms. In this situation, it is evident that no possible justification could be given to a policy of borrowing from external sources. Purely economic criteria would dictate that an internal borrowing operation should be undertaken and that this operation should take the form of borrowing from the banking system, that is, money creation. Such borrowing does not, at its inception, act to reduce the rate of capital formation, and no aggregate burden in the primary sense is involved in the making of future transfers, if indeed positive interest need be paid at all. External debt, on the other hand, does explicitly tie an interest drainage onto the country's future income stream. This is the sort of comparison which seems to have been in the minds of those who were instrumental in shaping the current orthodoxy.[9] Under these conditions the external debt would carry with it a differential burden. But here, as before, it must be observed that the differential pressure is solely due to the higher real borrowing rate necessary with the external loan. It is not attributable to the "externalness" of the debt itself. The real interest cost of an internal debt is the sacrificed rate of internal productivity. Under conditions of deep depression this rate is extremely low regardless of the money rate at which the debt instruments are marketed domestically. We find, therefore, that the more general analysis suggested in this note applies fully even when the full-employment assumption is relaxed. The important principle which emerges is the obvious one that economic criteria should always be employed in choosing the form of the loan; the locational source is not important at the initial level of comparison.

The relative overemphasis on the distinction between internal and external public debt is perhaps not significant as it applies to current policy problems of highly developed countries. In such economies, new issues of public debt

[8] The Colwyn Committee in its Majority Report, chose to emphasize the differences in the difficulties of making domestic and international transfers. This is understandable, but such emphasis has caused the Report's correct statements on the basic similarities between the two debt forms to be almost completely overlooked. See *Report of the Committee on National Debt and Taxation* (London, H. M. Stat. Office, 1927), pp. 26-28.

[9] This is clearly the comparison considered by Wright. See "The Economic Limit and Economic Burden of an Internally Held National Debt," *op. cit.*, pp. 117-18.

will take the internal form. However, the internal-external loan choice may be a real one for some of those countries of the world currently seeking to promote industrialization and rapid economic growth through public investment projects. It seems quite possible that policy-making groups in some of these countries may be led unduly to favor the issue of internal as opposed to external debt. It must of course, be recognized that the "transfer problem" aspects of external debt may be the ruling factor for many underdeveloped economies, but the current orthodoxy of public debt theory which is to be found in almost all of our public finance textbooks may serve only to reinforce established nationalistic prejudices against the creation of foreign indebtedness. This is one area of study where the specialized literature of the last twenty years may provide less assistance to policy-makers than old-fashioned economics.

The public debt analysis presented in this note is of more general applicability than may at first appear. Everything which has been said with reference to the government or community is applicable to the debt problems of the individual or family unit. The individual should also be guided in his borrowing decisions as to "internal" or external loans by basic market criteria. If he "borrows" internally from his 3 per cent savings account to finance the purchase of a new automobile instead of financing externally through a 6 per cent carrying charge, he is making a rational decision. Conversely, if the external rate is lower, recourse to external founds is dictated. And, of course, transfer problem difficulties could also modify these conclusions.

It is not necessary to introduce the "false analogy" or the "we owe it to ourselves" analysis at any point in the fundamental theory. The economist does not need to rely on the fallacy of aggregation to analyze fully the phenomenon of the public debt. This does not suggest that the "false analogy" approach is wholly fallacious. The argument is perhaps useful in demonstrating that the servicing of an internally held public debt does not involve a net drainage from the aggregate income stream, aside from that created by the frictions of transfer. But the danger in the use of this argument lies in the human propensity to jump to the apparently related, but wholly fallacious, conclusion that the servicing of an external debt does involve such a drainage from the *same* income stream.

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Acceleration and Magnification

It has recently been pointed out[1] that it does not follow from the acceleration principle alone that the output of investment-goods industries will fluctuate more widely than the output of general industry. Baumol has shown that while the positing of acceleration and magnification does not lead to contradictions, the latter phenomenon is not implied by the former. Given that net investment varies directly with the rate of growth of net national output, it

[1] W. J. Baumol, "Acceleration Without Magnification," *Am. Econ. Rev.*, June 1956, XLVI, 409-12. The author is much indebted to W J. Baumol and George Morton for invaluable criticisms of an earlier draft.

is not a necessary consequence that a percentage change in national output will lead to a greater change in the output of investment-goods industries.

Starting from this proposition, in this paper we consider under what circumstances acceleration will lead to magnification. In other words, we wish to discover what additional hypotheses will, together with the acceleration principle, lead to magnification. Similarly, we investigate some conditions under which acceleration will imply diminution of fluctuations in investment. (Diminution is defined as the contrary of magnification.) We limit our considerations to the consumption function (relating consumption to net national income), and the income-capital relation (net national income related to national capital or net investment as a function of the change in net national income). In addition, we restrict ourselves to those situations in which depreciation is a linear function of capital. We are then able to show that if the marginal propensity to consume is less than the average propensity to consume, a necessary condition for diminution is that the ratio of net national income to capital is an increasing function of capital. In other words, magnification is as much a matter of the propensity to consume as of the accelerator.

Gross national income is defined as the output of the investment-goods industries plus consumption. Net national income is equal to gross national income less depreciation, that is, net investment plus consumption. Net investment is the change in the capital stock of the economy. We make the following assumptions: (a) there is a direct relationship between capital and net national income, but there is not necessarily a constant ratio between the two; (b) the marginal propensity to consume with respect to net national income is positive, and the average propensity to consume varies inversely with net national income.[2]

The output of the investment-goods industry is equal to net investment plus depreciation so that magnification of the investment-goods industry is said to occur when a given percentage change in income goes hand in hand with a larger percentage change in net investment plus depreciation. Thus, magnification may be relative either to gross national income or net national income. Diminution is said to occur when a given percentage change in income yields a smaller percentage change in net investment plus depreciation.

Now consider an expression of the form:

$$y = \sum_{i=1}^{n} X_i$$

where all the variables on the right-hand side are increasing functions of y. If there is magnification of at least one X_i relative to y, there must be diminution of at least one of the remainder. Thus, if there is magnification of gross investment relative to gross national income, there must be diminution of consumption relative to gross national income. In other words, the marginal

[2] If the alternative assumption, that the average propensity to consume increases with net national income, is made, a different set of conclusions will follow, notably that there will be magnification of the consumption-goods industry rather than of the investment-goods industry.

propensity to consume with respect to gross national income must be less than the average propensity to consume.

A sufficient condition for this to be the case is that gross national income fluctuates more widely than net national income. (This is because we have assumed magnification of net national income relative to consumption.)

As gross national income is equal to net national income plus depreciation, it follows that depreciation is magnified relative to national income, net or gross. The percentage change in depreciation is equal on the linearity assumption to the ratio of net investment to capital. (The absolute increase in depreciation is equal to a constant times the change in capital: the original level is equal to the same constant times the stock of capital.) Therefore, the sufficient condition for magnification now becomes that the ratio of net investment to capital be greater than the percentage change in net national income. This is equivalent, however, to the condition that the ratio of net national income to capital is a decreasing function of capital.[3] We conclude, therefore, that a sufficient condition for there to be magnification relative to national income, net or gross, is that the income-capital ratio varies inversely with the capital stock.

It may now be seen that magnification is possible even when this condition does not hold, *i.e.*, when the income-capital ratio varies directly with the stock of capital,[4] so that the sufficient condition is not a necessary one. Suppose that net national income fluctuates more widely than gross national income with the result that there is diminution of depreciation relative to national income, net or gross. It is still possible that there will be diminution of consumption relative to gross national income, implying magnification of gross investment relative to gross national income.

Write: Y_g = gross national income

C = consumption.

[3] Write K = capital

Y_n = net national income.

If there is magnification we have

$$\text{for } \frac{dK}{dt} > 0, \qquad \frac{dK}{dt}\cdot\frac{1}{K} > \frac{dY_n}{dt}\cdot\frac{1}{Y_n}$$

$$\text{and for } \frac{dK}{dt} < 0, \qquad \frac{dK}{dt}\cdot\frac{1}{K} < \frac{dY_n}{dt}\cdot\frac{1}{Y_n}.$$

Both of these yield

$$\frac{Y_n}{K} > \frac{dY_n}{dK}.$$

This is equivalent to $d\dfrac{\left(\dfrac{Y_n}{K}\right)}{dK} < 0.$

If the income-capital relation is defined for gross national income, the condition becomes that the ratio of gross national income to capital must diminish, and the argument follows in the same way.

[4] In the simple linear case, $Y_n = aK + b$, this implies b is negative.

For the positive case:

$$\frac{dC}{dt}\cdot\frac{1}{C} < \frac{dY_n}{dt}\cdot\frac{1}{Y_n} \tag{1}$$

$$\frac{dY_g}{dt}\cdot\frac{1}{Y_g} < \frac{dY_n}{dt}\cdot\frac{1}{Y_n} \tag{2}$$

These two inequalities are compatible with either

$$\frac{dC}{dt}\cdot\frac{1}{C} < \frac{dY_g}{dt}\cdot\frac{1}{Y_g} \tag{3.1}$$

$$\text{or } \frac{dY_g}{dt}\cdot\frac{1}{Y_g} < \frac{dC}{dt}\cdot\frac{1}{C}. \tag{3.2}$$

(For the negative case the inequality signs will be reversed yielding the same conclusion.)

Equation (3.1) for the positive case (or with sign reversed for the negative case) implies magnification of gross investment relative to gross national income, and also allows for the possibility that there is magnification relative to net national income. In fact, in this case we have net investment fluctuating more widely than national income, net or gross, and depreciation fluctuating less widely. Consequently, gross investment, which is the sum of net investment and depreciation, may fluctuate more or less widely than national income. Thus, to avoid magnification we require the marginal propensity to consume with respect to gross national income not to be smaller than the average propensity to consume. For diminution of gross investment there must be magnification of consumption relative to gross national income, and for a proportionate variation in gross investment consumption must be proportionate to gross national income. (This last point is of particular interest, for it allows consumption to be a diminishing proportion of net national income while maintaining a constant ratio to gross investment.)

In conclusion, the validity of the acceleration principle as an explanation of magnification in a highly aggregated model has been seen to depend on the validity of certain additional empirical propositions about the economy as a whole. Whether an alternative theory is to be preferred depends to some extent on the acceptability of these propositions, and on what other propositions would be required to support the new theory.

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BOOK REVIEWS

General Economics; Methodology

Economic Institutions and Human Welfare. By John Maurice Clark. (New York: Alfred A. Knopf. 1957. Pp. xii, 285, ix. $5.50; text ed. $4.00.)

This volume is a collection of J. M. Clark's essays in the general field of the principles of economic policy and ethics. The essays have been revised and brought up to date, and they make up a volume of remarkable unity, though inevitably of some repetitions. Two essays originated in the early 1940's. The bulk of the book however was written after 1953, so that it is of fairly recent origin. The heart of the book consists of two long essays, one on Economic Welfare in a Free Society, written for the Columbia University Bicentennial in 1954, and the other on the Ethical Basis of Economic Freedom, based on two lectures given for the Calvin K. Kazanjian Foundation in 1955. Of the shorter essays one on the Interpenetration of Politics and Economics is perhaps the most interesting.

It is almost as hard to review a book with which one is in complete sympathy as it is to review one which evokes no sympathetic response. One's reaction degenerates into frequent nods of approval and ejaculations of consent. There is so much ripe wisdom here, such beautifully balanced judgment, with a warm, hopeful concern for the deeper aspects of human welfare balanced by a sharp analytical realism, that one is content simply to enjoy, to savor, and to consent. Throughout these essays runs a plea for a balanced, pragmatic approach to economic institutions, for what the author calls "constructive serviceability." Let us have private enterprise where that is most effective, public enterprise where *that* is most effective, governmental and legal frameworks to prevent unreasonable fluctuations or intolerable inequalities and let us always remember that the fundamental object of the economic system is not the production of commodities, which are all merely intermediate goods, but of rich and interesting human lives. Let us beware of ideologies, whether of rigid *laissez-faire* or of doctrinaire socialism; let us treasure the freedom of the individual, but not be afraid to limit it by law in the interest of greater freedom for all, and let us inculcate the habit of responsible behavior, without which freedom inevitably destroys itself.

It is impossible to convey the richness of quality of a work like this in a brief review. There is something peculiarly American in the thought of J. M. Clark: it stems from the sweet reasonableness of Penn and of Emerson, from the pragmatism of William James, from what might be called the Gentle Tradition in American life. It stands over against the harshness and cruelty both of Manchester and of Marx, with their confident solutions and roughshod ideologies. To some extent too it stands over against the bright young world of the econometricians and operations researchers, though this is not brought out in these essays. There is always a danger of course that the gentle may de-

generate into the genteel without some stiffening from the tough-minded, and some critics might feel that Clark's thought is a little too "tender"—that it does not wrestle enough with the difficult quantitative questions of how much and just when! Nevertheless in an age that is too tough, too cruel, and too brittle, long on knowledge and short on wisdom, there is an important place for a gentle, kindly, and wise approach to the problem of the economic ideal.

K. E. Boulding

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25 Economic Essays in Honour of Erik Lindahl 21 November 1956. (Stockholm: Ekonomisk Tidskrift. 1956. Pp. 412. SKr. 20.)

Honoring the most outstanding Swedish economist of his generation, twenty-five economists have contributed these essays on a wide variety of subjects and in a wide variety of languages (11 essays in English, 10 in Swedish, two in Norwegian, one in Danish, and one in German). While any Scandinavian freshman would master all five languages, a few of the best essays will remain hidden to most Anglo-Saxon colleagues. The essays are arranged in the alphabetical order of the names of authors, and it might be helpful for reviewing purposes to reassemble them in the following ten groups according to the fields they cover.

To price and allocation theory Gunnar Lindgren contributes an able attempt (in Swedish) at unification of the theory of decision-making. The opening paragraph of Samuelson's *Foundations* is quoted and sets the tone of the entire essay. Gustaf Åkerman applies (in English) the marginal-productivity theory to the optimization of an agricultural product-mix under changing wage rates.

To aggregate income and employment theory there are six contributions. Ragnar Bentzel submits a lucid paper (in Swedish) on the aggregation of production functions. Trygve Haavelmo has an equally lucid paper (in Norwegian) on equations versus identities in macroeconomic theory. It is a pity that this paper is not in English; it is still badly needed in our profession! J. R. Hicks, in his paper on methods of dynamic analysis presents, among other things, a masterly evaluation of Keynes. Ralph Turvey discovers some hitherto unnoticed properties of the transaction demand for money. Alf Johansson examines (in Swedish) residential construction as an instrument of public policy, and for the 'fifties finds it much less suitable than it was in the 'thirties. Johan Åkerman contributes a paper (in English) on the relationship between microeconomics and macroeconomics in the analysis of the cumulative process. The targets for attack in this paper are the Keynesians and the Stockholmers alike.

Three papers are devoted to the problems of inflation. Bent Hansen and Gösta Rehn contribute the largest essay (51 pages) of the entire collection. The paper undertakes a theoretical and statistical analysis (in English) of the so-called "wage drift" in postwar Sweden. Sweden has had a phenomenal rise in money wages—10 per cent per annum for the postwar period. "Wage drift" refers to the fact that the actual rate of increase of hourly earnings in almost all branches of manufacturing industry has been in excess of what was agreed upon in the annual contracts—a sort of "grey" market! Hansen and Rehn's

findings are that "wage drift" is highly influenced by good old demand and supply in the labor markets. The development of excess profit in the enterprises seems to play a minor role, and the findings give no support to the official union explanation that wage drift is an automatic consequence of the increase of productivity under piece-work earnings. Carsten Welinder writes (in Swedish) on the sensitivity of tax revenues to inflation, and G. Westin Silverstolpe (in Swedish) discusses farm leases under inflation.

There is one paper on the theory of fiscal policy, *i.e.*, Erich Schneider's penetrating analysis (in German) of the balanced-budget multiplier. The paper is an interesting further development and qualification of Baumol and Peston's note in this *Review* (March, 1955).

Ingvar Svennilsson contributes a paper (in English) on the theory of growth with an application to a forecast of Swedish capital stock and its composition by 1975.

There are three papers on computing and statistical methods. Ragnar Frisch (in English) starts out with some small talk about digital computers but abruptly turns very technical in his discussion of computation problems in macroeconomic linear-programming models like his own for Norway. Karin Kock discusses (in Swedish) the problem of adjusting data collection to the needs of forecasting. Olof Lindahl presents some impressive results (in English) of a Kuznets-like (and Social Science Research Council-supported) estimate of the Swedish gross national product 1861-1951.

To international economics and area studies there are two contributions. Börje Kragh analyzes (in Swedish) three hyperinflation-ridden economies, *i.e.*, Bolivia, Chile, and Paraguay. Erik Lundberg contributes (in English) a spirited comparison between the stability problem in the Australian and the Swedish economies. Like Lindahl, Lundberg was invited to Australia to compare notes on the inflationary pressure in a rapidly growing economy. The ratio of gross investment to GNP in the postwar period has been 30 and 25 per cent for Sweden and Australia respectively.

On international administration there are papers by the two members of the Stockholm School who have become top international civil servants. Dag Hammarskjöld examines (in English) the touchy subject of self-determination and economic aid to underdeveloped economies. His point of departure is the observation that nations emerging from long foreign rule generally lack an independent administrative tradition and a social structure within which it is easy to build up a class of national administrators. Hammarskjöld welcomes Lester Pearson's proposal for an international professional and technical civil service of the United Nations with experts especially trained for work in the underdeveloped areas. Gunnar Myrdal (also in English) presents a progress report on the research work done in the Economic Commission for Europe.

To the history of thought and method there are four contributions. The best is Erik Dahmen's paper (in Swedish) on the history of monetary theory. Here is a brilliant illumination of the idea that new theories reflect the rise of new institutions. One wishes this paper had been in English. More on the technical side, Karl-Gustav Landgren examines (in Swedish) the history of Wicksell's application of Euler's theorem to the theory of the distributive shares. F.

Zeuthen offers a witty essay (in Danish) on computer and man; and Johan Vogt submits a very personal account (in Norwegian) of well-known as well as lesser men he has met in life. There was the Norwegian heretic Dybwad-Brochmann, there was the Danish theorist and conservative reformer L. V. Birck, and above all there was Silvio Gesell. Even Quisling is noticed in passing. Like many of his generation Johan Vogt is a former Marxist, and his account of this particular phase of his life is most human and entertaining.

Finally, there is one contribution to economic history. Hugo Pipping examines (in Swedish) the resumption of silver species-payments by the Bank of Finland after the monetary reform of 1840 with special emphasis on the effects upon the Swedish silver standard.

As is usually the case in such birthday volumes, the quality of the contributions is not even. As a whole, however, this volume maintains traditionally high Scandinavian standards.

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The Dynamics of the American Economy. By CHARLES H. HESSION, S. M. MILLER and CURWEN STODDART. (New York: Alfred A. Knopf. 1956. Pp. xvii, 504. $5.75.)

This textbook will probably best serve the purposes of an introductory course in social science rather than the usual economics course. According to its authors it "attempts to offer a fresh view of our economy and its contemporary problems in terms of a behavioral approach" (p. vii). This approach is further stated to be a "holistic one, influenced by institutionalism, infused with the newer developments of social science and directed by a concern with economic and social welfare" (p. 47).

The result is a textbook which in organization and content is unique. The book may best be classified as economic sociology with accent on economic as an adjective, since so little of conventional economic analysis is present. Of the six major sections into which the book is divided Sections II and III on "Business as a System of Power and Social Influence" and "Labor, Its Economic Role and Way of Life" constitute over half of the total material. These sections are concerned chiefly with economic evolution, the distribution of power in society, the changing social values of business and labor in American society and the impact of these values on the lives of individuals. Modern economics, in the words of the authors, "must concern itself with the quality of our lives as producers and consumers as well as with the quantity of goods and services our economy produces" (p. viii). Or as the authors also express it, "an economic system produces not only goods, but men" (p. 60).

The same sociological approach is pursued in the fourth section on "Competing Interest Groups." This part deals with such other economic groups as the farmers, small business men, and white collar and professional groups. It also includes an interesting chapter on the problem of the social control of conflicting interest groups. This section along with the two previous ones may in many ways be viewed as an extension of the type of popular industrial sociology writing that has appeared in *Fortune* over the past two decades. In fact,

Fortune articles are cited 26 times. The material is further enlivened by interesting case studies of the history of the U.S. Steel Corporation, the impact of conformity in the International Business Machines organization (a reproduction of an early *Fortune* article), the settlement of a labor dispute, and a study of the changed status of the corner druggist.

The last two sections on "National Income, Its Growth, Fluctuations and Possibilities" and "Economic Progress and Human Welfare" are somewhat closer to the material of a conventional economics textbook. However, since no attention at all is given to money and banking the discussion of economic instability is perforce quite weak and very largely descriptive.

A book review is not the place to debate what the methodology of economics should be or what the content of an elementary economics course should be. Obviously, the authors of this textbook hold views on these matters at decided variance from those held by a large part of the economics profession. Judged wholly in terms of the objectives the authors have set for themselves, their textbook is a commendable piece of work. It is well organized and interestingly written and it is certain to be welcomed by those who seek to make out of economics a much broader subject than the conventional view of economics as a science permits.

A. MORGNER

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State University of Iowa, Bureau of Business and Economic Research, publications:

Major Issues in Economic Education. By LEWIS E. WAGNER. Studies in Economic Education series. 1955. Pp. v, 31. $1.00.

Testing Economic Knowledge and Attitudes. By LEWIS E. WAGNER. Studies in Economic Education series. 1955. Pp. v, 21. Out of Print.

What are Economic Problems? By LEWIS E. WAGNER. Primer of Economics series. 1955. Pp. vi, 19. 50 c.

Measuring the Performance of the Economy. By LEWIS E. WAGNER. Primer of Economics series. 1956. Pp. vii, 39. 50 c.

Iowa Business Digest. Special Issue on Economic Education. 1957. Pp. 46. Free.

It would be almost as difficult to find anyone who is against economic education as it would be to find someone who is against virtue. But to some economic education means consumer economics, and perhaps particularly personal finance; to others it means "community" economics, closely akin to high school courses in civics; and to many economic education smacks of propaganda. But however the scope of economics be conceived, only a small fraction of the population is currently being exposed to formal work in the discipline. It is estimated that only 20 per cent of those entering high school go to college, and of these less than a quarter take work in economics. Less than 5 per cent of the high school students take courses in economics, and the percentage has been decreasing in recent years.

If it be granted that economic education should be more widely diffused,

it seems clear that there must be a considerable degree of cooperation between economists and public school administrators and teachers. Considerable work of this sort has been going on in recent years, largely under the sponsorship of the Joint Council on Economic Education. Enlisting the enthusiastic support of economists has not, however, been easy. A joint project carried on with a professor of education does not seem to carry the professional distinction that one done with the assistance of a professor of mathematics would provide. The research that needs to be done in this area gives little promise of professional recognition since it is the sort of thing that any patient man could do. The busy economist might be persuaded to consult with high school teachers of economics, and he might even be prevailed upon to supply text materials, but, when he is asked to cooperate with those trying to impart some degree of economic education at the elementary school level, he is likely to lose all interest and wash his hands of the whole matter.

In spite of the serious difficulties considerable progress has been made in several parts of the country in establishing programs in economic education. Numerous workshops under the direction of the Joint Council on Economic Education are held each summer, and the American Economic Association has recently established a standing Committee on Economic Education. Of all the programs now in operation one of the most successful has been that of the Iowa Council on Economic Education. It has issued two series of publications: Studies in Economic Education, which are concerned with selected problems in the area, and the Primer of Economics, which is written primarily for high school seniors and college freshmen studying courses in economics and related subjects. The Winter 1957 issue of the *Iowa Business Digest* is devoted exclusively to articles on economic education. The topics included in these publications are diverse, but the level of competence of the authors is uniformly high and the economics is respectable. Anyone contemplating work in the area of economic education would do well to begin with the publications of the Iowa Council.

CLARK LEE ALLEN

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Price and Allocation Theory; Income and Employment Theory; Related Empirical Studies; History of Economic Thought

Theoretical Welfare Economics. By J. DE V. GRAAFF. (New York: Cambridge University Press. 1957. Pp. x, 178. $4.00.)

In a short space Mr. de V. Graaff deals cogently with most issues in contemporary welfare economic theory. He systematically develops the corpus of the theory, devoting especial attention throughout to the assumptions that must be fulfilled in order to deduce the familiar marginal equivalences of the general optimum. This is followed by an application of the theory to foreign trade, the pricing of governmental services, and welfare comparisons over time.

The work is in the tradition of Bergson and Samuelson. Given available resources and the current state of technology we can derive the society's transformation function. Given consumer tastes and the group consensus about

desirability of alternative distributions of income, we can formulate the society's welfare function, and from this derive community indifference functions. Juxtaposition of social transformation and social indifference considerations enables us to deduce conditions for maximum welfare. Such conditions for the class of "Paretian social welfare functions" (functions restricted only in the property that social welfare rises or falls as the welfare of any one man rises or falls, the welfare of all others remaining constant), are, *under certain assumptions,* the familiar marginal equivalences of the Paretian general optimum, for which no interpersonal comparisons of utility are necessary. The broadest of these is that the marginal social rate of transformation should equal the marginal social rate of indifference (or, in partial form, that marginal cost should equal price in all lines of production).

There are a number of distinctive features in Graaff's presentation. First, he is unwilling to rule out the possibility of increasing production returns to scale. Second, in the spirit of Duesenberry and Baumol, he stresses the empirical importance of external economies and diseconomies in production and especially consumption. Third, he considers the possibility that the society's transformation function may depend not only on the supply of inputs, but on the distribution of wealth to the owners of the inputs. Thus, more food to undernourished workers at the expense of the well-fed may increase total production.

The effect of these considerations is substantially to complicate the conditions for the general optimum. The familiar ones are no longer necessary conditions. Competition, for example, no longer leads to the optimum. Ad valorem or lump-sum taxes may be adequate correctives under certain circumstances. Under other circumstances—for example, when there are significant external economies and diseconomies in consumption—conditions for the general optimum cannot be formulated without recourse to more concretely restricted social welfare functions: interpersonal comparisons of utility are required.

There are further complications. Divisibility is ordinarily assumed. Substantial indivisibilities may make marginal rates of transformation indeterminate and, where consumption is concerned, involve *finite* shifts of expenditure which also necessitate making interpersonal comparisons of utility. Even more serious, if we desire that our welfare function be based on individual preferences (instead of being dictatorial), it may not be possible to formulate, since it must reflect value judgments about problem areas where strong consensus is unlikely. First is the question of the exact population and time period involved. Second, the composition of capital remaining at the end of the horizon must be settled. Third, there is uncertainty: therefore disagreement about the magnitude of relevant variables; disagreement about how to allow for uncertainty; and a further complication of the welfare function by making the inclusion of anticipations (as a function of prices) desirable.

Graaff's conclusions despair of a practical welfare economics. The marginal cost-price rule, the compensation principle, the size-distribution distinction in national income (hence aggregate indices), have little prescriptive merit. Moreover, it is unlikely that we can empirically discover group value-consensus extensive enough to support concrete recommendations. The only useful func-

tion for the economist is to make available positive, not prescriptive, information.)

Graaff's is a familiar outcome. Up to a point there can be no quarrel with it. The deserved inclusion of the above complexities leaves little that is recognizable or convenient of the welfare rules. But the practical advice to drop welfare economics in toto may be too strong. If we are willing to recognize that individuals themselves have no such precise complete preference fields as sometimes attributed to them, that indeed, it is almost always the even fuzzier ("group") preferences of households rather than individuals that "count" on the market, we may be less shocked by the relative imprecision of "social preferences." The practical tolerability of varying degrees of proximateness may be well worth studying.

Furthermore, Graaff's position does not account adequately for the complexity of individual preferences. Thus, in explaining why persons typically distinguish between the size and distribution of income in making intertemporal comparisons, he too facilely assumes dictatorial individual preferences—assertedly, on grounds that such comparisons do not involve choices. Others are not being committed to anything so their preferences need not "count." But intertemporal comparisons do involve choice, since they provide feedback by which policies are evaluated. The outcome of any such comparison influences future policy choices. Graaff takes his unpromising position here because he neglects the possibility that individual preferences may be double-layered: on one level, the individual's predilections about total distributions of income; on another, his willingness to commit his predilections, *along with others'*, to ultimate test via the society's legitimate decision-making processes. Indeed, something like this seems to underly Graaff's faith in positive economics helping others to make informed judgments: seeing the economist as willing that the legitimate resultant of such judgments should express the group choice.

Graaff's position stands up well, on the other hand, against the alternative (adopted by Little and others) that "saves" welfare theory by asserting that interpersonal comparisons of utility are matters of fact rather than value judgments, and therefore in principle capable of noncontroversial demonstration. Proponents of such a position have a difficult task of persuasion.

Graaff has written a very useful, therapeutic volume. It neatly crystallizes our hard-won results and then shocks us into perpetual vigilance by showing us the artificiality of the world for which we earned them.

JEROME ROTHENBERG

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Knut Wicksell—rebell i det nya riket. (Knut Wicksell—A Rebel in the New Nation.) By TORSTEN GÅRDLUND. (Stockholm: Bonniers. F. 1956. Pp. 412. SKr. 39.)

This book is a definitive and excellent biography of Knut Wicksell. It should be of great interest to those who are acquainted with only his economic works. This reviewer has learned that it will soon be available in English translation.

Gårdlund's study shows clearly that Wicksell was not only one of the great-

est economists of his generation, but also an agitating reformer of considerable power. Most people in his own country knew him best for his indefatigable social reform propaganda and his sensational appearances as a public speaker on the unpopular side of many questions. He became a marked man for his efforts in behalf of neo-Malthusian principles of birth control, companionate marriage, and equality for women. He also offended many of his contemporaries by the way in which he expressed his opposition to the state church and its religion, and to Sweden's defense preparations. He worked ardently for parliamentary reform, expansion of the franchise, protection of freedom of expression, and for measures (especially in education) designed to equalize economic opportunities and reduce inequalities in the distribution of wealth. Many came to regard him as a social rebel who, as Gårdlund puts it, "deliberately chose the shock approach as his mode of participation in public life" (p. 276). Relatively few knew him in his other character, a cool-headed, creative economist endowed with analytic powers of the highest order.

This may be the reason Gårdlund devotes only three of fourteen chapters of his book to Wicksell's contributions to economics. Yet this may be appropriate. Wicksell's work in economic theory is now widely known and has received considerable discussion in the literature. Also, to attempt a thorough evaluation of his scientific work would have disrupted the continuity which is desirable in a biography.

As Gårdlund relates it, Knut Wicksell was born in Stockholm in 1851, the youngest in a family of five children. His childhood was saddened by the death of his mother when he was six years old and the death of his father when he was fifteen. His father, Johan, a man of humble origin, was a grocer and produce dealer who gradually built up a modest fortune based on ownership of working-class apartments in Stockholm. When he died he left his children the means to obtain a secondary education and a start toward professional careers.

Wicksell went to Uppsala University in 1869, where he performed brilliantly, completing a degree in mathematics and related subjects in five semesters, about half the time this normally takes. But he was troubled by religious scruples and later by doubts as to his ability to be creative in mathematics. While he pursued graduate work in this field, his energies were increasingly deflected into literary, and student-corps leadership activities. Eventually, in 1885, he earned a graduate degree (*fil. lic.*), a small step short of a doctorate, in mathematics and physics, but after that he went abroad and for a period of five years concentrated on economics.

What determined his change of career was a popular lecture he gave in 1880 on the means of preventing alcoholism. It ended in a neo-Malthusian plea for early marriages, with children limited to two or three by voluntary application of contraceptive birth control. This caused him much adverse publicity and forced him, in defense, to devote his time to studies of the population question and related social problems.

Toward the end of his foreign studies (in England, Germany, Austria, and France), he entered into a "conscience" or companionate marriage with a Norwegian lady, Anna Bugge, who bore him two sons and remained his loyal

wife and companion for life. Since his marriage was a private agreement, without civil or church sanction, it added to his notoriety and to the refusals of academic positions he hoped for on his return to Sweden. In 1895 he completed his doctorate in economics at Uppsala only to find that he needed an additional degree in jurisprudence to qualify for a professorship. This he completed after another two years of intensive study, 1897-99, whereupon he was appointed a docent in economics and fiscal law. Next year, 1900, he became an assistant professor of these subjects at Lund University, where, after many trials and tribulations, in 1902 he achieved a tenure position, and a full professorship in 1904. He finished his short academic career at Lund in 1916. For most of the remainder of his life as a professor emeritus he participated in the monetary and tax investigations called for by the Parliament in the period 1917-23.

The crucial years in his life were the decade after 1890, during which he spent much energy on propaganda for neo-Malthusian principles. Up to 1886 he had financed his studies from his father's estate and by some teaching and writing of his own. Most of his foreign studies were supported by grants from a Swedish foundation. But when he returned to Sweden in 1890 with a young family on his hands, he found most avenues of employment, academic and otherwise, closed to him. So he eked out a meagre subsistence by making popular lecture tours in the Scandinavian countries, speaking for the reforms indicated above. In addition he served as a correspondent for a number of Swedish, Norwegian, and Finnish papers.

At one time, in the mid-1890's, he was on the verge of settling on a career as an obscure journalist. In his pressing circumstances he was sorely tempted to become the editor of a small Swedish daily or London correspondent of a larger paper, when these opportunities presented themselves. But he persisted in his poverty, combining serious scientific work in economics with propagandistic activities. It should be remembered that it was in these troubled years that he earned his doctorate and wrote his first three major works on economics, *Value, Capital, and Rent* (1893), *Finanztheoretische Untersuchungen* (1896), and *Interest and Prices* (1898).

What added to his many difficulties was that he attacked what he conceived as social injustice in its various forms vigorously, sometimes tactlessly, without caring about personal consequences. At crucial times, such as when his appointment at Lund was under consideration, he felt it a matter of duty to speak up for the truth, mostly unpopular truths, although he knew that the adverse publicity which almost always resulted from his appearances would jeopardize his career and solidify the opposition of administrators and conservative colleagues alike to his appointment, which was made nonetheless.

Because of his tendency to be the gadfly, the rebel, on the one hand, and the calm, objective social scientist on the other, he has been interpreted as a man of split personality. Gårdlund shares this perspective to some extent but finds him to be more like the hero, Brand, in one of Ibsen's early dramatic poems. As Gårdlund puts it:

> We have no clear evidence that Brand served as the model he chose for his life. Yet his life was moulded according to this character of Ibsen's.

> Like Brand he suffered "intimations of lack of harmony between life as it is and as it ought to be." Just as Brand, he rejected all compromise with the existing order of things, and he always felt himself facing choices which must lead either to victory or to defeat and castigation. Like Brand he placed the highest moral requirements on himself but also asked for heavy sacrifices from others. (P. 372.)

Although many of the reforms he had fought for in younger days had been achieved or were on their way to realization, toward the end of his life Wicksell was a lonely and somewhat pathetic figure. He resented old age and the debilities it brings. He died rather suddenly in May 1926 from an internal ailment complicated by pneumonia.

In this reviewer's opinion Gårdlund's biography, especially in translated form, will be a valuable addition to the too scant literature available on the lives of the world's great economists.

CARL G. UHR

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Volkswirtschaftliche Regelungsvorgänge im Vergleich zu Regelungsvorgängen der Technik. Edited by HERBERT GEYER and WINFRIED OPPELT. (Munich: R. Oldenbourg. 1957. Pp. 143. DM 16,80.)

In March 1955, the Control Systems Division of the Association of German Engineers (VDI-VDE) held a meeting in Essen that was entirely devoted to *Economic Control Processes in Comparison with Technological Control Processes*. This book, under the corresponding title, is an (apparently incomplete) collection of papers presented there.

Winfried Oppelt, a well-known author on servomechanism theory, gives a limpid introduction to the essentials of feedback amplifier design, exemplified by the thermostat, automatic blood pressure control in mammals, and a simple hog-cycle cobweb. He also explains proportional, integral, and differential stabilization policies and the Nyquist-diagram technique—material that the English-reading economist is likely to know from A. W. Phillips' articles in the *Economic Journal* of June 1954 and June 1957, and from Arnold Tustin's *Mechanism of Economic Systems* (London, 1953).

Herbert Geyer admittedly derives from the same sources and gives, in servomechanism language, a plausible reinterpretation of some macroeconomic theories from François Quesnay to J. M. Keynes. Beside a rudimentary discussion of dynamic stability conditions, there is an intelligent reconstruction of David Ricardo's theory.

Definitely more than derivative is a contribution by C. Föhl, a one-time mechanical control-system engineer whose *Geldschöpfung und Wirtschaftskreislauf* (Leipzig, 1937) is recognized to have paralleled, if not preceded, some Keynesian innovations. Resuming his old theme, the dynamic analysis of real and money circular flows, Föhl is quite modest about his original contribution and very generous to other innovators of the 'thirties like Ragnar Frisch and Michal Kalecki. In a frankly eclectic fashion, he tries to synthesize, with the help of "information flux designs," virtually all better-known constituents into

a workable "general" model of the economy. Föhl's familiarity with the pertinent non-German literature and his technical facility are impressive.

A brief survey of the mathematically more involved tools, such as the Laplace transform, for tackling servomechanism problems quantitatively is given by H. Tischner.

An econometric linear model of (some aspects of) the German economy *ca.* 1948-1951 is worked out by Rudolf Henn. It is somewhat marred by an infelicitous expository apparatus and is too aggregative to "sell" the main message of the book.

Karl Förstner discusses continuous and discrete models—that is, differential and difference equations—and develops a dynamic monopoly model that is serious, if conventional, mathematical economics.

Klaus-Jürgen Lesemann, who is affiliated with the computation center of the Technische Hochschule at Darmstadt, discusses the solution of economic control problems with the help of analogue and digital computers, their main features and comparative advantages. Also, the inventory-oscillation model of N. F. Morehouse, R. H. Strotz, and S. J. Horwitz (*Econometrica,* October 1950) is adapted as an illustration.

This was a truly interdisciplinary effort and a successful one. Indeed, the fact that the meeting was sponsored by engineers, and the quality of the outcome, put professional economic organizations to shame. One has to know the German economic scene with its prevailing antipathy to modern tools in order to appreciate the merits of this book. If in recent years a comparably sophisticated and sound contribution to macroeconomic dynamics has appeared in Germany, I should like to see it.

EBERHARD M. FELS

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Introduction to Keynesian Dynamics. By KENNETH K. KURIHARA. (New York: Columbia University Press. 1956. Pp. 222. $4.50.)

This volume presents an exposition of the short-term and long-term aspects of modern aggregative theory. The examination and discussion of formal models is the heart of the work; there is, consequently, heavy reliance on diagrammatic and, especially, on algebraic techniques. The algebra is elementary and should pose no problems of comprehension to graduate students. Professor Kurihara focuses sharply on analytical material: empirical issues and policy instruments are deliberately given scant coverage.

Considerable stress is placed on the underlying unity of the theories of fluctuation and growth. The common foundation of both parts of macroeconomics consists of the basic building blocks of Keynesian economics, which are presented in Part I. There, the reader is led through a review of Keynesian statics in successive chapters devoted to the consumption function, marginal efficiency of capital, and liquidity preference, respectively. Part I concludes with a chapter called "The Savings-Investment Adjusting Function," which provides a sturdy bridge to carry the reader into the discussion of dynamics. The analysis of Part I is thoroughly competent; the chief complaint is that it

displays excessive devotion to chapter and verse of *The General Theory*. While the author refers occasionally to recent developments in the literature, his Keynesian statics is distinctly of 1936 vintage. The omissions include material that seems particularly germane to a work which endeavors to relate cyclical and secular phenomena. For example, there is no discussion of the theoretical explorations designed to account for the paradoxical long-run constancy of the average propensity to consume.

Part II of the book is a discussion of short-run fluctuations. An outstanding feature of this section is its curious treatment of the acceleration principle. The accelerator equation is presented (p. 102) as:

$$I_t = b(Y_{t-1} - Y_0) + I_0,$$

where the subscript 0 refers to a given base period. Whatever its appearance, this equation posits level-induced—and not change-induced—investment. In fact, as the author recognizes, it introduces the "marginal propensity to invest," rather than the usual accelerator. One need not love the acceleration principle, but one should examine it in a work of this kind. Kurihara's sole recognition of this responsibility is contained in a brief passage (p. 107) where he obliquely criticizes an alternative formulation of the accelerator for implying rigidity in the ratio of capital to labor. Given the author's views, it is difficult to understand why he should wish to confer the name "accelerator" on an imposter with a striking algebraic resemblance to the usual concept. A straightforward exposition and critique of the conventional accelerator would have been preferable.

The fuzziness concerning levels and changes extends even to the notation of Part II. The symbol, ΔX, refers both to changes in the variable from the preceding period (*i.e.*, $X_t - X_{t-1}$) and to deviations of the variable from its base-period level (*i.e.*, $X_t - X_0$). This is, indeed, confusing notation: the author himself is led astray and presents incorrect numerical entries in several columns of both Tables 7 and 8 (pp. 100, 105).

Through much of the chapter on the dynamics of inflation, the saving and investment functions are specified in money terms. At last, the author entertains the possibility that the appropriate relationships are those in real terms; and he notes the explosive implications of such a system (p. 135). However, he then defends the convergent "money illusion" system (p. 138), invoking the support of income redistribution. The argument is unconvincing—as it must be, since this issue cannot be settled on a priori grounds. If the author employed the "money illusion" functions consistently, he would be committed to espouse wage and price flexibility as an antideflationary weapon. However, when this issue is discussed in the concluding chapter of Part II, the relationships are presented throughout in real terms. The exposition of the Pigou effect in that chapter is clouded by the author's eagerness to attack the thesis.

Part III, which deals with economic growth, contains some effective discussion of Harrod-Domar models and their implications. On the other hand, it has some questionable features. The views are markedly stagnationist: at times, growth of productive capacity in a highly developed economy is portrayed as though it were an unfortunate phenomenon whose prime consequence is to complicate the task of maintaining full employment (*cf.* pp. 185-90). In

another display of stagnationist leanings, the stability of an economy is carelessly equated to its immunity from depression (pp. 173-76). Also, the views on production theory stand in sharp contrast to those expressed earlier in the work. While the assumption of fixed proportions among inputs was treated as anathema in Part II, it is readily accepted (p. 180) and employed throughout Part III. In fact, there is excessive concern with rigidity, immobility, and maladjustments in the structure of production (pp. 201-02, 206, 209); the potential role of the price mechanism in alleviating these problems is nowhere considered.

All in all, Kurihara's work is well conceived and well organized. However, as indicated above, the details of the book are not equally satisfactory. Many sections seem either excessively (and, on occasion, inconsistently) doctrinaire or else just not sufficiently careful and precise.

ARTHUR M. OKUN

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Economic History; Economic Development; National Economies

Essays in Canadian Economic History. By HAROLD A. INNIS. Edited by MARY QUAYLE INNIS. (Toronto: University of Toronto Press. 1956. Pp. viii, 418. $8.50.)

If Canada's economic history has on the whole been better written than that of any other new country, this is mainly because of the work and influence of Harold A. Innis. The American Economic Association recognized this contribution in electing him to its presidency, and its members will be grateful to Mrs. Innis and to the University of Toronto for making available this collection of his essays.

The scope of the volume is wider than its title; and the papers, presented chronologically, cover the span from 1929 to 1948. One of the earliest interprets the work of Thorstein Veblen in terms of the struggle of "the practical wheat farmer" against the metropolitan economy as well as the rise of the machine industry. The final essay is a Canadian's warning to a British audience against American imperalism. The author was no less severe with many of the policies of his own country and was uncompromising in his defence of the dignity and integrity of the economist's profession against what he considered the corruptions of political involvement. Ghost-writing scholars were, he said, "stuffing the shirts of their betters"; and he told a political party gathering that the economist's assumption "that he can compete with demagogues . . . has proved to be palpably wrong, except to those economists who have become demagogues themselves in the competitive process."

"A philosophy applicable to the economic history of new countries" is laid down in the first paper and followed consistently throughout. Like Guy Stevens Callender, who described the dominance of external commerce as the essential characteristic of a colonial economy, Innis declared that "the development of a new country means above all things continued relations, especially trade, with the old country." For Canada this meant, at the beginning and throughout much of the later development, the production of staple products for the Euro-

pean and primarily the British market. Innis accordingly became the historian of Canada as a staple-producing economy. In analyzing the succession of export trades—fish, fir, timber and in later decades gold, wheat, paper and pulp, and the baser minerals—he handled with sure touch the factors of resource, technique and market. Fur as a product of high value in relation to weight and bulk could be carried upstream and over portages. White pine could be floated, thanks to its low specific gravity, but only downstream on the major rivers. The uneven weights of inbound and outbound shipments, leading to what Innis called "unused capacity," had unexpected consequences. Cargoes of fur were lighter than the goods needed to provision the trade, and the heavier loads had to be forced upstream on the St. Lawrence and the Ottawa. The discrepancy led to early efforts to promote agricultural settlement. Timber on the other hand was large in bulk and low in value, and in this case the discrepancy had the important effect of encouraging immigration. "Large numbers of settlers were brought out in preference to ballast." This suggestive analysis of "unused capacity as a factor in . . . economic history" would find numerous applications in the United States—and a recent illustration in the building of New York's East Side Drive on fill from the rubble of war-bombed Bristol!

The different staples had varying effects on the structure of economic and political organization. Fur was a centralizing force. But when Innis turned from his studies of the fur trade and of the Canadian Pacific Railway, which also was octopoid and monopolistic, to the fisheries of the Maritimes, Newfoundland and New England, he found a very different situation. Here the relatively small size of the ships, the modest capital requirements, the large number of ports, and the variety of nations and authorities, fostered greater reliance on individual initiative and led to decentralization and greater democracy.

All the staple trades shared the common element, in Innis' view, of great vulnerability to depression and other changes in external markets. Moreover, the shifts from one staple to another exposed Canadian development to marked irregularity and recurrent difficulties of adjustment. Partly because of these circumstances and partly as a means of defence against economic absorption by the United States, governmental authorities in Canada were particularly prone to economic intervention. Demands for such action led to constitutional changes, and Innis interpreted the union of Upper and Lower Canada primarily as a means for financing improvements in the St. Lawrence system to counter New York's success with the Erie Canal, and confederation itself as largely a fiscal device for the support of a transcontinental railway.

The main lines of this contribution were filled in by 1937. A number of the later papers are prefaces to the books of other scholars. Innis' own work presents penetrating comments, but not major research, on "the new industrialism in the hydro-electric power, mining and pulp-and-paper areas" and on the vastly increased importance of the relations between the Canadian and American economies. In one of the later essays, the successive gold-rushes in the various Pacific areas from California to Ballarat to the Yukon, treated under the title of "Liquidity Preference," provide the starting point for an extraordinary account of the current of world trade and development. In this the

impact of Argentine beef on the market for New Zealand meat and in turn of New Zealand butter on the Canadian dairy industry are examined with the same zest with which the author's early work explored the relations of Canadian fish and fur to Virginia tobacco, Caribbean sugar and the treasure of Mexico and Peru. Both demonstrate the richness of the endowment which he might have brought to more extended ventures in comparative economic history.

In filling his role as "the father of Canadian economic history," Innis combined, to a quite unusual degree, the functions of painstaking original research and of illuminating generalization. His books give full place to both. They will not be superseded by the present volume, but the best of its essays present in very brief compass the conclusions won by years of patient and productive labor.

Carter Goodrich

Columbia University

Science and Economic Development: New Patterns of Living. By Richard L. Meier. (New York: John Wiley & Sons and the Technology Press of Massachusetts Institute of Technology. 1956. Pp. ix, 266. $6.00.)

This is a remarkable book: a weighty contribution to the theoretic solution of the excruciating dilemma facing the majority of mankind who inhabit the underdeveloped countries. Dr. Meier, a natural scientist, approaches his task in the true spirit of daring scientific inquiry. Realizing that "the hardship that much of the world feels today can be attributed to a large extent to the inability to use resources to build production to meet the growing needs" (p. 26), he avoids the pitfall of taking for granted the conditions that give rise to that inability and of thus bogging down within the narrow confines of what is. Yet, although allowing his imagination to transcend what is "natural" and sanctified by tradition, he escapes the danger of being carried away into the realm of science fiction and of losing relation to the real world. Stating with admirable clarity the available possibilities for overcoming the existing misery, he lives up to the basic injunction upon all historically relevant and forward-looking scientific thought which demands "not only the establishment of risks and trends, but also the formulation of new utopias that are *consonant with the resources at the disposal of society*" (p. 226; italics added).

It is to the specification of such "realistic utopias," to the study not only of what exists but also of what is attainable that the book is primarily directed. Visualizing concretely the goals of economic development efforts, the author elaborates a global balance sheet of requirements and possibilities for their satisfaction, considering in turn the structure of human needs, the size of the population, the volume and nature of available resources as well as the technology of their utilization. In examining the material conditions for health and personal efficiency, Meier employs the fruitful concept of essential consumption—dubbing it "Minimum Adequate Standard of Living"—and estimates, for the first time to my knowledge, specific quantities of different resources required to provide for it. By extrapolating the present rate of population

growth and by making due allowance for modifications likely to result from the process of economic development itself, he arrives at an estimate of the approximate number of people whose needs will have to be met in the foreseeable future.

Although it is valuable, this part represents merely an introduction to the truly fascinating discussion of the available physical potentialities for economic progress. Scrutinizing the possibilities for a vast and rapid expansion of the world's supply of food and fuel, Meier breaks new ground and makes some of his most important and constructive suggestions. With regard to food, he stresses two points. One is that even if the present composition of food output should remain unchanged, the world's supply of food could be nearly trebled. Secondly, if feasible shifts in the structure of food production (and consumption) were introduced—in particular by large-scale cultivation of algae and by a strong emphasis on pisciculture—the expansion of the food supply could assume even larger proportions. Once the technological revolution in our food economy has taken place, "the present achievements of science can make the chronic food shortage an obsolete limitation upon human numbers and welfare" (p. 73).

Even more far-reaching in their implications are the opportunities in the other main sector of the economy: the energy supply. There the developments in thermonuclear physics are so momentous that concern over an impending exhaustion of energy sources becomes groundless. Quite apart from solar energy, the utilization of which is practicable in a number of ways, "there is enough energy in the earth to maintain a high level energy-using civilization on a world scale for an age much longer than the recorded history of man" (p. 96).

The exploitation of these immense opportunities is predicated upon fulfillment of several conditions. In the first place, it calls for a commitment to a strategy of economic development that breaks with outworn concepts both in economics and technology, and is in full correspondence to the attained state of scientific knowledge. This implies clear recognition that rapid and large increase of output can be secured only via massive industrialization accompanied by thorough modernization of agriculture—both based on a scientifically considered composition of output and the most advanced methods of production. "The most efficient pattern of industrialization now available to large societies emphasizes the use of continuous-flow processes and automation as much as may be economic in any developed part of the world" (p. 238). This in turn demands large-scale investment in new plant and facilities which can be provided only by a determined social effort. "In order to obtain conditions for the most rapid growth, all income beyond the necessities of life ought to be saved in order to be expended upon the capital goods and services most useful to a program for building up productivity" (p. 159). With regard to the commonly encountered objection that the underdeveloped countries are too poor to generate the required saving, Meier validly observes that "the world has been overmuch impressed by the tales of capital shortages in underdeveloped areas. It should be emphasized that the world *has* the industrial capacity to produce this equipment" (p. 221; italics in the original).

The maintenance of the Minimum Adequate Standard of Living, giving room for maximal accumulation of capital, requires at the same time a purposeful restructuring of prevailing consumption patterns. Since "an over-all improvement in diet depends upon the modification of tastes so that new and more available foods will be accepted" (p. 231), and since such "a change [is] merely a matter of astute education and propaganda" (p. 66), an energetic drive aiming at remolding eating habits could go a long way towards creating an equilibrium between the demand for and the supply of food. Similar modifications of people's preferences in the realm of housing, transportation, and recreation have to be induced by a conscious campaign of demonstration and persuasion. "In a contemporary society which manages to provide a relatively adequate standard of living . . . somewhere between 25 and 40% of all energy is committed one way or another to transport" (p. 123). Such a utilization of energy is highly irrational and can be avoided by a sensible spatial distribution of places of work, residence, and recreation, by sharply reduced reliance on automobiles, and correspondingly increased emphasis on public conveyances, cycles, etc.

It goes without saying that such a concerted endeavor at economic and social reconstruction is only conceivable if guided by a comprehensive plan (p. 239). Yet it is in the treatment of this—fundamental—condition for the materialization of his "realistic utopias" where Meier's discussion lacks the precision and concreteness which distinguish the rest of his book. Although recognizing that the guidance of the development effort by a planning authority serving the interests of society as a whole would be tantamount to a "displacement of the landholding aristocracy and the established old-line mercantile groups from the centers of power" (p. 203), he apparently assumes that the ruling classes to be displaced will cheerfully submit to such a "re-arrangement." While correctly observing that if, under conditions prevailing in underdeveloped capitalist countries, "the national income were markedly increased, it is highly probable that this would lead to an orgy of spending for land, luxury housing, automobiles, refrigerators and other symbols of higher social status and wealth" (p. 159), he surprisingly remarks that "the question of who owns the capital is nowadays almost irrelevant . . ." (p. 211).

This creates a certain sense of imbalance. The author's conspicuous neglect of the role played by *interests* in the socio-economic process makes it possible to discount his work as reflecting naive rationalism or the spirit of technocratic speculation. Such criticism may to some extent be deserved; but it should not be taken to detract from the outstanding merits of the book. Although failing to discern the powerful forces obstructing economic and social progress, the author demonstrates strikingly what could be accomplished given a more rational social order. The book should be widely read not only in the West, it should be translated into the languages of the underdeveloped countries and studied with the utmost attention by those who are concerned with planning and administering their economic and social development.

PAUL A. BARAN

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Poona: A Re-Survey. The Changing Pattern of Employment and Earnings. By N. V. SOVANI, D. P. APTE and R. G. PENDSE. Publication No. 34. (Poona: Gokhale Institute of Economics and Politics. 1956. Pp. xl, 555. Rs. 15 or $3.50.)

In 1936-37 a broad socio-economic survey was made of Poona.[1] In the following years, Poona underwent a very rapid growth in population. To determine the economic consequences of this growth for living standards, earnings, employment, etc., a resurvey was made in 1953-54. The present volume is a summary of the findings of the resurvey and a comparative analysis of Poona's situation in 1954 with 1937. The resurvey (hereafter called the survey) was made from a 4 per cent random sample of families holding rationing cards; after adjustments this yielded a sample of 5,601 families.

The book presents detailed information concerning family composition, education, occupation, income, housing, labor-force participation and unemployment of the population sampled. These various characteristics are tabulated with such a large number of "cross-breaks," that to attempt a synopsis would be like summarizing a telephone book. Suffice it to say, anyone interested in such statistics for an Asian city will do well to consult this volume.

In the 10-year period preceding the survey, Poona underwent a great expansion of population largely due to immigration. In the interval 1937-1954, the percentage of manual workers in the Poona labor force declined. This partly reflected a relative increase in unemployment, but it also resulted from a substantial relative increase in salaried persons, especially in government employment. Indeed, the authors contend (p. 494) that in Poona, private employment has increased only in response to the increase in governmental activity.

Poona's population growth apparently outpaced the rise in labor demand, for the percentage of unemployed job-seekers increased (pp. 316-22.) In 1953-54, 8.9 per cent of the "labor force" was unemployed (Table 4.3, p. 308); of these 35.5 per cent were looking for employment for the first time. Of all unemployed job-seekers (having previous job experience) 66 per cent had been unemployed for more than 6 months and 49 per cent for more than a year (Table 4.2, p. 307).[2] As might be expected, the unemployed were disproportionately drawn from the ranks of the unskilled. The percentage of the population in gainful employment declined from 1937 to 1954, as the percentage of earners fell from 32 per cent to 29 per cent. This decline was due in good part to a sharp reduction in child labor which was (in part at least) related to a broadening of popular education.

The increase in unemployment (between 1937 and 1954) is consistent with the authors' argument that the economic well-being of most Poona residents declined between 1937 and 1954. They contend that the percentage of families

[1] *Poona—A Socio-Economic Survey.* Part I: *Economic,* by D. R. Gadgil. Gokhale Inst. Pol. and Econ., Pub. No. 12 (Poona, 1945) and *Poona—A Socio Economic Survey.* Part II. By D. R. Gadgil, Gokhale Inst. Pol. and Econ., Pub. No. 25 (Poona, 1952). Poona is a city of about a half million (circa 1951) located about 90 miles southeast of Bombay.

[2] These figures, and the even more startling ones for longer periods of continuous unemployment (*i.e.,* about 20 per cent had been unemployed for between 4 and 10 years!) are questioned by the authors themselves (p. 306).

whose incomes were insufficient to purchase certain budgets labeled "Poverty Line" and "Destitution Line" increased between 1937 and 1954 (pp. 439-57). However, their argument involves the slippery concept of "equivalent adult units" and the questionable assumption[3] that the appropriate quantity weights in consumer budgets were the same in both years. The figures on housing (Ch. 5) leave no doubt but that housing services per person declined during the period; *i.e.*, number of persons per room increased appreciably (pp. 406-07).[4]

The distribution of both annual earnings and family incomes tended to become more equal[5] between 1937 and 1954. This was due to a slight tendency toward reduction in the inequality within occupational classes and, to a greater extent, to a reduction in income dispersion among occupational classes.[6] This decline in inequality is not very carefully analyzed, and the factors contributing to it are left obscure. However, it would seem likely that the sharp decline in the percentage of casual workers—as compared with salaried employees—would be one factor working in this direction. That is, the relative decline in casual employment tended to benefit the lowest annual earners most.[7]

There is information on the life-income cycle in Poona and also on occupational mobility, among generations. The material on occupational mobility, like that on income, occupation, education, etc., is cross-classified by social strata; *e.g.* Brahmins, Weaving Castes, Parsis, etc. Suffice it to say, it merits the careful attention of anyone interested in these subjects.

I found this to be a fascinating book. Its wealth of raw material can hardly help but enrich our knowledge of the comparative economics of developed and underdeveloped areas. Of course, Poona is not India. In his introduction, Gadgil remarks (p. iv) "Many of the results of the re-survey also appear to have significance for the Indian economy in general." This is undoubtedly true, but to draw valid inferences from Poona to India as a whole requires a detailed knowledge of both that is far more likely to be possessed by the members of

[3] Especially since there was a sharp increase in persons per square foot of housing (floor space) and an accompanying increase in family size.

[4] This statement holds for all apartments of less than five rooms, but not for the open-end class of five rooms and over.

[5] As measured by the relative interquartile range.

[6] Despite this decline, the inequality of earnings in Poona was far greater in 1954 than in the United States in (say) 1951. For example, the relative interquartile range for unskilled manual workers was 1.19, for skilled manual workers was .85 and for highly-skilled and supervisory manual workers was .91 (computed from Table 8.3, p. 503). In the United States the corresponding statistic for craftsmen, foremen, operatives and kindred workers was .53. In Poona, the relative interquartile range for lowest professions, primary teachers, etc., was .51; for clerks and shop-assistants, .65; for intermediate professions, secondary teachers, etc., .75 and for higher professions and salaried posts, 1.09. In the United States, for salaried professional and technical workers, and sales workers, the statistic was .54. The reader will note that the U.S. categories are broader than those for Poona and hence tend to exaggerate (relatively) the U.S. income dispersion. U.S. figures are computed from H. M. Miller, *Income of the American People* (New York, 1955), Table 7, p. 24.

[7] This statement, I suspect, would be reversed if the lower percentile considered were the decile rather than the quartile. However, the detailed income figures for 1937 were not included in this volume, and the authors do not attempt the calculation themselves.

the Gokhale Institute than by any foreigner. It is therefore earnestly to be hoped that there will soon appear an essay on the socio-economic structure of India in the light of the Poona resurvey.

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Historia Moderna de México, la República Restaurada: la Vida Económica. By FRANCISCO R. CALDERÓN. Introduction by Daniel Cosío Villegas. (México. Editorial Hermes. 1955. Pp. 812.)

It is gratifying that Mexican economists are beginning to take an active interest in the neglected subject of Mexican economic history. The field is a difficult one in which to work. Secondary literature to guide the investigator is scarce, primary materials for the most part have to be sought in semi-organized archival collections, statistics are fugitive and often unreliable. Mr. Calderón, a young economist on the staff of the Bank of Mexico, is to be commended for undertaking a study in a field in which the going is bound to be rough.

The result, however, is disappointing. The book, containing over 700 pages of text, deals with the ten-year period 1867-1876, the so-called "Republican Restoration" of President Juárez and his immediate successors. It has the appearance of an exhaustive summary of documents, in which the setting down of details seems to be an end in itself. Passages of interpretation are not lacking, but they are scattered through the mass of detail and they tend to be casual and truncated in nature. The value of Calderón's work is found in the materials he has assembled. Perhaps he himself will make more effective use of them later on; but at any rate other scholars exploring Mexican economic history of the last hundred years can be expected to turn to account the information he has worked so hard to collect.

SANFORD A. MOSK

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Venezuela: Política y Petróleo. By RÓMULO BETANCOURT. (Mexico, D. F.: Fondo de Cultura Economica. 1956. Pp. 887.)

Venezuela has the reputation of being the "richest little nation in the world." During the last two decades it has become the second largest producer of "black gold" and the world's largest oil exporter. These facts are known to any reasonably well-informed person. However, Betancourt tells the things about Venezuela which are not so generally known.

Rómulo Betancourt, a former president of Venezuela, is a profound student of his nation's history and problems. In this volume he has written an exceedingly well-documented, if frequently passionate, study of the Venezuelan oil industry and the effect which it has had on the economy, social life and politics of the country.

Betancourt draws a dismal and really shocking picture of the way in which the Venezuelan oil industry got started during the twenty-seven year dictatorship of Juan Vicente Gómez, who ran his country as if it were his private estate. Although the dictator and his *camarilla* benefited greatly from granting

concessions, and the oil companies were able to operate under what were for them exceedingly favorable conditions, neither Gómez nor the British and American oil companies were much concerned to see that the great mass of the Venezuelan people should participate in the returns of the industry.

In the decade after the death of Gómez the most vigorous voices demanding that the country "sow petroleum" and use it to build a richer and more stable economy for Venezuela were those of Rómulo Betancourt and his associates in the Democratic Action Party, which came to power in October 1945. Betancourt devotes a large part of his book to a description of the way in which the regime which he headed sought to increase Venezuela's participation in the benefits of petroleum and to make sure that the returns from the industry were used to create a more diversified economy.

He immediately negotiated with the oil companies the famous 50-50 arrangement, which has since become generalized throughout the international oil industry. The effect of this was vastly to increase the income going to the government from the oil industry. Thus in 1947, when Venezuelan oil production was 130.9 per cent of 1938 output, government income from production was 621.2 per cent of the 1938 return. This amounted to some 814.5 million bolivares, in 1947, though if the pre-1945 terms had still been in effect the government's return would have been only 554.9 million bolivares, according to Betancourt.

The Democratic Action regime invested these funds in an extensive program to "sow petroleum." In the field of agriculture the government, through the Agricultural Bank and the Venezuelan Development Corporation (established by the Democratic Action regime) developed a large program of loans to small agriculturalists. The Development Corporation also began a program of irrigation to bring water to the large areas of Venezuela which needed it. The Institute of Colonization laid plans—which it had just begun to fulfill when the Democratic Action regime was overthrown—for settling Venezuelans and immigrants on some of the extensive government agricultural properties.

In the field of manufacturing, the government's Industrial Bank was given vastly increased funds to lend to Venezuelans interested in setting up new manufacturing enterprises. In the field of heavy industry, the government was negotiating with the U.S. companies extracting the country's iron ore for the establishment of an iron and steel company, under government ownership.

Extensive steps were taken to improve the living standards of the average Venezuelan. The government encouraged a policy of wage increases in private industry, including the oil industry, a policy which it carried out with its own employees. The educational system was rapidly expanded, with particular emphasis on teachers colleges. The health program was notable, as was the Democratic Action administration's housing policy. Instead of concentrating housing activities in Caracas, the regime built workers' homes in most provincial cities, and greatly increased the number of units built.

The Democratic Action government was ousted by the army in November 1948 when Betancourt's successor, Rómulo Gallegos was overthrown. According to Betancourt, most of the policies launched by his party's administration were either allowed to lapse or were reversed by the military dictatorship. Like

dictatorial regimes which preceded them the army rulers have concentrated on a spectacular building and public works program in the capital instead of a program designed to create a more diversified economy. Betancourt is particularly critical of the army regime's petroleum policy. He accuses this administration of not seeing that the 50-50 agreement is carried out. He also attacks the military government for reversing the Democratic Action policy of not granting new concessions. His charges about the influences which the oil companies have brought to bear in order to get new concessions do not make a pleasant story.

This is one of the most serious and important books about a Latin-American economy to appear in many years.

ROBERT J. ALEXANDER

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Statistical Methods; Econometrics; Social Accounting

Regional Income. Studies in Income and Wealth, Vol. XXI. (Princeton: Princeton University Press, for National Bureau of Economic Research. 1957. Pp. x, 408. $8.00.)

This volume consists of ten papers which were prepared for the Conference on Research in Income and Wealth held in June 1955, together with the comments of conference participants. It presents not only a discussion of the many problems involved in using regional income data, but also points up the value of the regional approach in economic analysis.

The ten papers have been divided into three major groups. Those by Werner Hochwald, Harvey S. Perloff, Walter Isard and Morris B. Ullman and Robert C. Klove are devoted to some of the conceptual issues generally involved in any study of interregional differences. The papers by Frank A. Hanna, Abner Hurwitz and Carlyle P. Stallings, and Edwin Mansfield present the results of empirical investigations of interregional differentials. The papers by Lorin A. Thompson, John L. Fulmer, and Henry S. Shryock, Jr., are concerned with problems encountered in the estimation of county income.

Hochwald discusses lucidly two conceptual difficulties in regional-income estimation. He argues that (1) regional sectoring of economic activity may only partially coincide with the spatial jurisdiction of institutional transactors who can not properly be identified with a particular geographic area, and (2) that the operations and institutional transactors may, and frequently do, extend beyond the particular region under study. His explorations of the possibilities of estimating regional income in a manner similar to the national accounts is worth considering further. Descriptions of the statistical difficulties encountered in regional-income estimation are handled well and one does not feel that the problems are insurmountable.

Some alternative methods of regional-income analysis are suggested in the comments on Hochwald's paper. The value-added method suggested by F. H. Leacy has merit in that it does not depend on complicated interregional money flows.

The discussion by Perloff on the decisions that underlie interregional com-

parisons is stimulating and thought-provoking. He suggests a dynamic approach and presents the concept of "shifting regions" in assessing regional progress. While the use of variable regions would require enormous work to build up a historical picture for a region each time its coverage was changed, this approach offers considerable food for thought and will no doubt be used by future regional economists.

Isard presents an excellent discussion on the value of the regional approach to economic analysis. His illustrative materials, drawn from policy problems relating to resource use—transportation, tariffs, depressed areas, and monetary and fiscal institutions—point up the wide range of problems which can be approached from the regional point of view. Isard's comment that new and improved tools, procedures and frameworks are needed in regional analysis should serve as a challenge to regional scientists with the "pioneer" spirit.

The extremely good description of the geographic areas for which data are available together with a discussion of the factors which influenced their formulation and their usefulness for economic studies are presented by Ullman and Klove of the Bureau of the Census. Of special interest is the description of the proposed division of the 48 states into 9 groups. The difficulties encountered in putting "marginal" states in one group or another emphasize the need for regional data by smaller areas so that differences within states can be taken into consideration. This discussion also highlights the problems encountered in attempting a single general-purpose grouping of states.

In the opinion of the reviewer, the statistical and conceptual difficulties encountered in identifying and utilizing a single set of general-purpose regions are so great that logic and convenience require the abandonment of the general-purpose region in favor of the concept of the region as a spatial grouping of *selected* features. The factors selected for analysis will vary with the purposes of the analyst and will change over time.

The empirical study by Hanna on interstate income differentials adopts the framework of the United States as a single economy and looks at the differences between states as arising from the varying combinations of skills, industries, and resources. The standardization of earnings provides the basis for statistical correlation analysis which gives "explained" variation in the statistical sense between income and occupations; yet one could not conclude that the spatial distribution of occupations was not affected in some way by state boundaries; the unexplained variation still remains a crucial problem. Hanna's use of a regression line rather than a line of proportional change to describe changes over time in state income seems to rest on solid ground. He is aware of the limitations of both cross-section and time-series analysis; he calls the limitations to the reader's attention and poses questions still to be answered.

Hurwitz and Stallings in their paper on "Interregional Differentials in Per Capita Real Income Change" develop state and regional price indexes for the period 1929-1953. When the price indexes were applied to per capita income, there was no substantial change in the relative position of most states. While this tends to make the authors conclude that nothing was really accomplished by the study, yet the state and city price data presented will be most useful to research workers.

Mansfield's paper on city size and income in 1949 indicates that there are marked regional differences in the median-consumer-unit incomes within cities of approximately the same size. A limitation of the study lies in his use of income data for families and unrelated individuals rather than family income. However the result—there is marked variation in income in cities of comparable size—would undoubtedly not be significantly changed if the latter concept were employed.

Thompson's discussion of experiments in estimating Virginia county incomes from limited current data and relationships from earlier years vividly points up the problems and limitations in making estimates for small areas.

In his paper, Fulmer proposes a method of estimating agricultural income for small areas which is based on a regression equation derived from the state income payments series and limited current data. Some of the assumptions made by Fulmer in his analysis appear to be questionable, for example, that the relative productivity of labor as exhibited in farm wages is the source of differentiation between agriculture and the rest of the economy, and also within agriculture between geographic areas; that all farm labor is paid its marginal value product and the operator is paid for his labor at the same rate as hired labor.

The paper by Shryock describes and appraises the methods used by the Census Bureau and agencies of the various states for making intercensal estimates of the populations of local areas. The importance of this type of data makes this paper together with the comments on it most valuable for regional analysis.

MORRIS E. GARNSEY

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Economic Systems; Planning and Reform; Cooperation

Marx et le problème de la croissance dans une économie capitaliste. By ÉLIANE MOSSÉ. Centre d'Études Économiques, Études et Memoires, no. 33. (Paris: Armand Colin. 1956. Pp. 250.)

Miss Mossé's elaborate study comprises two main elements: a painstaking recapitulation of Marxian views on the development and the impending downfall of the capitalist system, and a statistical "verification" of these theories by comparing them with the actual evolution of the French economy from the beginning of the nineteenth century to 1913. The theoretical part which occupies slightly more than half of the book is uncompromisingly arid but succeeds in presenting, within a relatively small space, the essentials of the pertinent doctrines. Miss Mossé rightly notes that the theory of economic crises has not been systematically treated by Marx and has been the source of confusion and discord among his disciples. According to her interpretation, there is nothing fatalistic about the Marxian analysis: "It implies both the liberty and the responsibility of man confronted with the evolution of society. Capitalism will not collapse by itself in a purely mechanical way: it is the conscious will of men, conditioned by their surroundings, . . . that will bring about the breakdown of the system . . ." (p. 134).

In the statistical portion of her study Miss Mossé deals separately with the general indices of economic growth and the transformation of the textile industry. She admits that French nineteenth-century statistics are woefully inadequate, lacking in precision, and contradictory (p. 226), but she holds nevertheless that the forbidding tables, charts, and graphs which clutter her pages serve a useful purpose, a contention that some of her readers may hesitate to accept. The Marxian analysis, according to Miss Mossé, "constitutes for the economist—theoretical or practical—an extremely precious intrument of research and action in dealing with economic developments. It gives him the sense of the possible" (*le sense du possible*). She admits that Marx "did not say *everything* on the problem of growth of a capitalist economy" (p. 224), but she has no difficulty in makinng up these deficiencies by drawing on the writings of Lenin and Stalin who are to her the ultimate authority.

The most striking conclusion which emerges from Miss Mossé's statistical investigation is that the economic status of the French workingman has deteriorated throughout the nineteenth century. This generalization is, of course, in agreement with the Marxian theory of the impoverishment of the working class, but it runs contrary to the view prevalent in French economic literature which Miss Mossé ignores. Émile James, under whom Miss Mossé wrote her study, states in his preface that he "refuses to believe that the masses of the French workers are more miserable (*plus misérables*) today than they were in 1850." It is unlikely, however, that Miss Mossé would follow his suggestion "to go beyond" (*dépasser*) Marx. Her Marxist-Leninist orthodoxy is as unbending as it is ardent.

MICHAEL T. FLORINSKY

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Business Fluctuations

Business Forecasting in Practice—Principles and Cases. By A. G. ABRAMSON and R. H. MACK. (New York: John Wiley and Sons. London: Chapman & Hall. 1956. Pp. xiii, 275. $6.50.)

Perhaps, as the authors might put it, we don't know enough to write treatises on "principles" of business forecasting. Certainly the reader will question part of the title, for "principles" are notable by their absence. Cases, yes—six of them—are described in some detail, but nowhere can the reader discover "principles."

The authors undertook, in preparing this volume, to satisfy two objectives, "to give the reader specific information on how forecasts are prepared, including the techniques and reasoning by means of which forecasters reach conclusions from available data," and to "indicate how existing studies of business cycle causation could be utilized more fully." The first objective is served by the six cases, the second is served not at all. Causal explanations are nowhere to be found.

Chapters 1 and 2 purport to set the stage, to provide an essential background against which the cases presented in the subsequent six chapters may be understood and evaluated. In 36 pages the reader is treated to a "survey" of

business cycle theory—profit expectations, psychological theories, monetary theories, monetary and nonmonetary overinvestment theories, over- and underconsumption theories, innovation theories and Keynesian analysis are developed. The upshot of this review is that "responsible and accepted students of the problem have arrived at different explanations—and they may all be right." Fortunately, responsible students have other surveys upon which to base their knowledge of cyclical causation.

Chapter 2's objective is "to present a description of the method or techniques currently in use among business forecasters." "His is not an exact science," state the authors (one wonders as to the nature of sciences and arts) and "forecasts are still estimates about which no one can be sure." Techniques are divided into three, possibly four, basic groups: the mechanical, the causal, and those that assume that individuals must plan ahead. The fourth appears to be a technique involving the gathering of opinion.

Happily, the cases offered as illustrations do indeed describe some sources and procedures utilized by businessmen in preparing forecasts of aggregate business activity. Their quality is far from uniform, but all do provide grist for the mill of those responsible for the formulation of business policies that depend directly on estimates of future aggregate business activity. Many will find the data sources described to be very useful. Especially well prepared was the chapter entitled, "Business Review and Forecast" by Kenneth D. Ross.

The sketchy discussion of procedures, even in the case materials, for relating forecasts of aggregate business activity to forecasts of specific industry or business series, together with the disappointing coverage of the subject of cycle theory and aggregative economics, serve to justify a prejudice of this reviewer. These two requirements for business forecasting are sufficiently complex to deserve treatment too extensive to be incorporated in a single, average-size college textbook. Certainly more adequate and more satisfying materials covering these two subjects can be drawn from more specialized books and articles which have less ambitious objectives but which treat these subjects more exhaustively.

PHILIP NEFF

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Money, Credit and Banking; Monetary Policy; Consumer Finance; Mortgage Credit

Financing Goods. By ALBERT G. SWEETSER. (Newton Highlands, Mass.: Author, 160 Lincoln St. 1956. Pp. xiv, 509.)

This is a highly specialized book dealing with the institutions, techniques and mechanics of borrowing for the purpose of carrying merchandise inventories. The author's aim is not to present a rounded treatment of the areas usually covered in the standard books on business or corporation finance. It is rather to familiarize the reader with the details of practices and procedures, forms and documents involved in day-to-day borrowing operations. It is completely "practical," institutional, and legalistic in its approach; and in its

complete coverage of a small segment of the field of private finance it is something like a handbook or series of monographs held together by the central idea of inventory finance.

After a brief introduction that deals very lightly with the determinants of goods-capital requirements, the author devotes several chapters to unsecured sources of credit, such as open book accounts, bank borrowing, advances by customers and agents. But over four-fifths of the book is concerned with the practical and legal intricacies of secured short-term credit. No less than 305 pages are devoted to loans secured by goods in the possession of lenders, and an additional 144 pages to loans secured by goods in the possession of borrowers. Under the first come such topics as possessory liens, collateralized bank loans, endorsements and guarantees; followed by no less than seven chapters on warehousing and warehousing loans, replete with detail upon detail. Under the second category of secured loans (on goods in possession of the borrower) real estate mortgage security is touched upon and chattel mortgages, trust receipts, and loans by sales-finance companies are treated in some detail.

The author has a penchant for documents and forms, and there is a formidable array scattered throughout the book, reproduced, as is the text, by the offset process. These forms add realism but interfere with easy reading. One warehousing document takes 10 pages (293-302) and is exceeded only by a commodity loan inspection report form covering 15 pages (374-388)! Much of this material was obtained by direct correspondence with institutions, and according to the author more than 100 banks provided some type of credit form. Other concerns such as warehouses, sales-finance companies, etc., sent in many more.

The author's style is direct and clear. This reviewer found the book informative and, as far as he can judge, competently done. But the plethora of technical detail is at times almost overwhelming. Although questions at the end of each chapter suggest its possible use as a textbook, it is likely to be too highly technical and detailed for any but the most specialized courses in the practical aspects of merchandise financing. It could possibly be used for reference purposes in courses where students need to know more about basic commercial documents and practical details. And it is a useful handbook for those in the fields of banking and finance who want an easy reference source for forms, procedures and legal details in this important, though limited credit area.

CHELCIE C. BOSLAND

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All India Rural Credit Survey. Report of the Committee on Direction: Vol. I, *The Survey Report,* Part I, *Rural Families.* (Bombay: Reserve Bank of India. 1956. Pp. x, 1067. Rs 9.)

In the December 1955 issue of this *Review,* P. T. Ellsworth reviewed Volume II of the report on this Survey, which consisted of the recommendations of the Committee. Volume I is being published in two parts, Part I dealing with the use and users of credit in the rural villages, and Part II with the supply and suppliers of rural credit. Volume I, Part II, will be the last number in the

series. Volume III, called "The Technical Report," describes the technique of the Survey and presents the major statistical findings.

The field work on this Survey was begun in October 1951 and concluded in the following June. The tabulation and analysis was largely completed by August 1954, and a summary was released in June 1955. Apparently it was deemed important to announce the recommendations as soon as possible so as to get needed action under way. It is my understanding that legislation in line with these recommendations has already been enacted.

Economists generally will of course be interested in the findings of this Survey, but this reviewer is more intrigued with the undertaking itself and how it was carried out. This Survey is a striking manifestation of the strong interest which the leaders of India have in mass information about their country. Of course they have periodic census data on the usual subjects, but better and more complete than that of most countries at the same stage of economic development. In addition, an extensive national sample survey is conducted each year under a private contract with the Indian Statistical Institute. The results are in the usual form of totals and particularly averages by area and a considerable number of other groupings. The All-India Rural Credit Survey was conducted in 75, or 1 out of every 4, "districts" in India. Then 8 villages were selected in each of the 75 districts, 4 with cooperative credit societies and 4 without. A "General Schedule" was used with all the families in these 600 villages. From these families, 15 "cultivating families," that is, families farming more land than a garden, were selected for much more intensive inquiry as to farm assets, organization and operation, and business transactions including loans and repayments. These 15 families were selected by stratifying all the cultivating families by deciles according to amount of land cultivated and choosing 2 from each of the upper 5 deciles and 1 from each of the lower 5. The Report is careful to explain, however, that averages for a district obtained by combining the returns for the 8 villages chosen may not truly represent the district, since the villages were chosen to represent the different major sets of conditions in the district. It is most important that these sets of conditions be known and understood. The same must be true for the 75 districts out of the 302 in India. Averages for the particular villages will represent the villages, since all families were enumerated, but not the averages for the 15 families intensively surveyed. It is interesting, for one who has done some work with Indian materials on Indian economic problems, to observe this much of an escape from random sampling.

The chapters in the report deal successively with the outstanding debt of the cultivator and other families, the growth of debt during the year, the trend in indebtedness since the Provincial Banking Enquiry Committee reported on it in 1929-30, the borrowings and repayments, family borrowings for other than food, capital expenditures and formation, gross savings, current farm operations, credit requirements and ability to obtain loans, and the flow of funds among the different groups.

The outstanding debt of the 127,343 rural families surveyed averaged Rs283, and of the cultivator families Rs364. For the cultivating families as a whole, the outstanding debt was only 5.1 per cent of total assets for the 5

upper-decile groups, and 8.7 per cent for the 5 lower-decile groups. The borrowings in the year of the Survey averaged Rs210 for the cultivators, ranging from Rs111 for the small to Rs173 for the medium, to Rs357 for the large and Rs528 for the "big." Put together, these two sets of figures reveal the fact that the cultivator families that borrow live from year to year in good part on borrowed funds. They have to borrow to grow their crops and feed and clothe their families during the growing season. The high interest rate, from 25 per cent up, is in large part what keeps them from getting out of debt. The comparison with the 1929-30 report shows that conditions have been altered very little in this respect. Some of the families, however, manage somehow not to borrow—31 per cent of the cultivators were not in debt at the time of the survey interview—or are unable to borrow. It is these circumstances, of course, that keep the borrowings down to what looks, to one in Western Europe or the United States, like such a low fraction of total assets.

This makes pertinent a question as to the description in the Report of the study of villagers' borrowings as a survey of the "demand" for credit. Of course the information obtained is no more a reporting of what economists mean by demand than would be a reporting of family expenditures in 1956 on woolen goods would be a reporting of the demand for woolen goods in that year. The information obtained does, however, contribute importantly to a realization of the nature of the demand.

For example, it is highly revealing to learn that 47 per cent of the borrowings of cultivator families are for "family expenditures," and that the 42 per cent for farm expenditures was divided 31 per cent for capital expenditures and 11 per cent for current expenditures. The noncultivator families' borrowings were 70 per cent for family expenditures. The family expenditure borrowings of the cultivator class were 37 per cent for clothing, shoes, bedding, etc., 17 per cent for construction and repairs of the house and other buildings, and 28 per cent for marriage, death and other ceremonies.

All these and similar data are reported in tables with the cultivator families by districts classified as big, large, medium and small. A large part of the report is occupied with tables of this sort. There is no differentiation in these tables, however, by individual villages, nor between those with cooperative credit societies and those without.

The information in this Report will be of considerable guidance value in the development of a rural credit program for India. The question is pertinent, however, as to whether it would not have been a more efficient use of resources to have limited this survey to a minor fraction of its present dimensions, and to have used the rest of the survey resources in assembling, unit by unit, the particular data needed to implement the credit program adopted as it moves forward.

Also one must say that after all the information in this Report is merely as to how the present rural credit system is working out with the families. There is little to indicate how alternative systems might work out. To illustrate, a project just now getting under way in India indicates that, for a set of 6 representative case-study farms in 2 districts in Uttar Pradesh averaging 6.9 acres of cultivable land and 3.3 workers per farm, an addition of Rs321

cash expenditures per farm, mostly spent on fertilizer and seeds, would add Rs1219 or 77 per cent, to the gross value of output per farm. With this kind of farming and the kind of cooperative credit societies now operating in the Philippines, the demand for credit in these two districts could multiply several times.

John D. Black

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Introduction to Money. By Honor Croome. (New York: Barnes & Noble. 1957. Pp. viii, 209. $2.20.)

In fewer than 200 pages, Mrs. Croome, formerly on the staff of the *Economist,* succeeds in skillfully introducing the general reader to many of the basic concepts connected with the subject of money. As the book is addressed to a British audience, most of the background references are to English economic history and institutions, and no less than a fourth of the text is devoted to international currency and trade problems.

A survey of the nature and development of modern money leads into a discussion of contemporary financial institutions, particularly the commercial banks and the Bank of England. Beginners might have welcomed a more extended discussion of that baffling subject, the deposit-creating activity of banks. The heart of the book, the section on monetary theory and policy, simplifies without misleading. Causes of change in the value of money are discussed under the categories: (1) the supply of money; (2) the supply of goods, and (3) liquidity preference. Repercussions of changes in the value of money on different groups in the economy within the framework of existing institutional responses are traced and the need for a monetary authority pointed to. Keynes's *General Theory* is interpreted as focusing on the deflationary tendencies of modern capitalist economies.

Mrs. Croome suggests that the proper aim of monetary policy is the highest attainable level of activity which would not necessitate direct controls or precipitate an "undue" inflation, undue being a rate "which shows signs of accelerating" (p. 123). A review of the various instruments of monetary and fiscal policy concludes with the observation that "Because the steered economy cannot be held to a hairline course, it must keep that much further away from the ditch towards which its natural bias pulls it—the ditch of inflation" (p. 141).

The author departs from her usual practice of cautioning the reader that a certain point is a matter of controversy among economists when in discussing the 1920's she refers to the world's inadequate gold stock and to "a tendency towards deeper depressions and less prosperous booms" in the preceding half century (p. 109). The statement that in the late 1930's nobody could get gold for American dollars (p. 164) overlooks an important feature of our gold policy. Nor was it the case that the 1949 devaluation of the pound was in disregard of the International Monetary Fund (p. 186).

The beginner whose appetite has been whetted by this lucid introduction,

will find well-chosen suggestions for further reading. A few of the titles would not interest the American student.

BENJAMIN J. KLEBANER

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Public Finance; Fiscal Policy

Financial Policy 1939-45. By R. S. SAYERS. (London: H.M.S.O. and Longmans, Green. New York: British Information Services, distributor. 1956. Pp. xv, 608. $6.75.)

This admirably written volume is one of the Civil Series, edited by Sir Keith Hancock, in the British History of the Second World War. It is based largely on official papers, primarily those of the Treasury, but it also benefits enormously from Professor Sayers' own skill in weaving together and interpreting the vast masses of materials covered. The unwillingness of the authorities to allow publication even today of some of the critical figures (p. xii) does not seem to have done substantial damage.

The study has three important characteristics which at the same time are, in a sense, serious limitations. First, it is largely concerned not so much with the content of policy as with the formation of policy: not so much with what was done and what results followed, as with how and why particular views came to be adopted and particular actions taken. Unless one already knows the sequel, it is at times like reading a mystery novel which tells why the murder was arranged but not, except inferentially, whether it ever really took place. It is a study in the politics of economics, but there is little explicit economic analysis as such. Second, the formation of policy is itself presented almost entirely from the point of view of what happened in London and what London knew at the time. This is an understandable procedure, but its consequence is that in the chapters dealing with international problems the motivations of other nations are sometimes, and inevitably, misinterpreted. The informed American reading the chapters on Lend-Lease, for example, is often moved to vehemently restrained comments beginning "Yes, but don't you see that . . . !" Third, there is a marked paucity of statistical data in the text, only partly made up for by the appendices. This is in the main a reflection of how the Treasury actually worked. The war-time Treasury official was often and perhaps usually brilliant, but in a sense he was, as Sayers remarks, "traditionally the very shrewd amateur" (p. 379), not a seed-bed or a processing machine for statistics. The reader is explicitly and very fairly forewarned of these various characteristics in the preface, but they still plague him to the very last page.

British financial policy in the war had two rather different components, internal and international. In wartime the two are perhaps more nearly separable than in times of peace, but there must surely still have been many connections between them. Yet at most points they are here presented as though they were two independent sets of phenomena. The explanation is perhaps that much the same groups of men must have influenced the formation of the main

lines of policy in both areas, and have taken the central decisions; and that the actual existence of the cross-connections was hence inherent in the operational set-up itself. The outside reader, however, sometimes feels puzzled by the apparent compartmentalization.

The great problems of internal financial policy, which occupy roughly the first half of the book, were two: first, to get both the people at large, and many oversanguine officials of government itself as well, to realize how gigantic the task of carrying on the war was going to be; and second, of devising means to raise the necessary sums without serious contemporary inflation. During the first two years, of the "phoney war," it was somehow thought that shortages of raw materials would soon hamstring the Germans; and this optimism was reflected in the relatively moderate (by hindsight) increases in taxation and the reliance on "voluntarism" with respect to bond sales and other matters. The German invasion of Norway and Denmark, the fall of France, and Dunkirk brought a rude awakening. Happily the intellectual ground had been largely prepared by Keynes' celebrated articles on "How to Pay for the War." Even his arithmetic was largely accepted, and the general form of the 1941 budget, once hammered out, was not materially altered for the rest of the war. Overt inflation was avoided. Sayers' account of all this is clear, often dramatic. But one misses any substantial appraisal of the simultaneous problems of repressed inflation, of the distribution of the "real" burden of financing the war, and of the heritage left for the postwar period.

International financial policy was a far more complex thing, partly from its very nature but partly because Britain had different attitudes toward and arrangements with almost every country. Moreover, whereas internal policy proceeded with assurance after 1941, international policy was an unending series of desperate struggles and hair-breadth escapes from catastrophe: struggles to keep armaments, materials and food flowing in; to maintain the economic functioning of the Commonwealth and the wider sterling area; to cope with the ominously swelling sterling balances and the constant threat of foreign exchange depreciation; and to save at least a little from the wreckage of the pre-1939 economic empire with which to make a new start after the war. These chapters are among the most gripping and most illuminating of all the published chronicles of the war.

A considerable portion of them is naturally devoted to relations with the United States. The thing that stands out here with painful clarity, however, at least to any American who had much contact with the other end of some of the same problems, is that despite enormous effort and good will the British and the Americans involved never wholly succeeded in understanding one another's standards and objectives. The British wished to regard the Lend-Lease and Mutual Aid arrangements as meaning, at bottom, financial pooling. We did not. Even apart from the tortuous problems of relative standards of living and of the "essentiality" of Lend-Lease exports (problems which are hardly mentioned), we regarded Lend-Lease as being basically a provision of marginal supplements, to be made only *after* the British had pretty well exhausted their own resources at each point in time. Again, they thought we should in effect compensate them for at least some of the enormous and crucial

burdens they had carried before Lend-Lease began. We disagreed, tending rather to the view—however unreasonably—that the earlier phases of the conflict had been none of our affair. Again, we were waging war in two major theatres, not in one alone, but the British never seemed to grasp the extent and effects of our economic and emotional pre-occupation with the Pacific. Many of our own officials, in turn, did not understand the defense for, and mistrusted, British concern over the postwar economic situation and their consequent urgent desire to maintain a reasonable volume of export trade even in wartime. The bitterness over the Export White Paper, the mutual suspicion and conflicts over South American markets, and the maddening American demands that Lend-Lease be cut whenever British hard-currency reserves increased a bit, were inevitable but almost tragic results of all this. The brutally sudden termination of Lend-Lease after V-E Day, against which many American officials protested at the time, was simply part of the same pattern.

Sayers sets out the British side of these struggles with great objectivity, and indeed with remarkable insight into at least a good deal of the American attitudes (often themselves only partly conscious); the passages beginning on page 376 are admirable. In the main, also, his presentation seems to me convincing. Even apart from considerations of whatever one may wish to describe as "justice," and in terms merely of American self-interest, the postwar history of trade discrimination and of the urgent need for loans and renewed aid strongly suggests that in the long run a more generous Lend-Lease policy would have been cheaper for us, and might well have led to a much earlier solution of the problems of postwar reconstruction.

James W. Angell

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Studi di scienza delle finanze e diritto finanziario. Vols. I and II. By Benvenuto Griziotti. (Milan: A. Giuffrè. 1956. Pp. xl, 521; xiii, 585. L. 3.000 each volume.)

These volumes collect the independent essays of the late Professor Griziotti, one of the classical scholars in the Italian tradition of public finance. The separate contributions date from 1908 to 1954, and they cover a wide variety of subjects. Luigi Einaudi contributes a preface to Volume I. The late finance minister and author of the Vanoni plan for Italy's economic development, Ezio Vanoni, a former student, contributes a preface for Volume II. A complete bibliography of Griziotti's work appears in Volume I.

Griziotti was born and reared almost within the shadows of his beloved University of Pavia where he was educated and where except for a very brief period, he did all of his work. He was instrumental in the efforts to preserve for public finance its status as an independent branch of scholarship in Italy. To Griziotti, the study of public finance must begin with a recognition of the separateness of the subject-field itself, and the study must encompass the various academic disciplines as they are relevant. He continued to oppose those who would reduce finance theory to applied economics, and he emphasized the importance of the politico-legal aspects of financial problems. In some respects he was close to the American institutionalists, notably Commons.

Although he was interested in the practical value of the study of public finance, there was little of the welfare economist in Griziotti. He deliberately refused to construct norms for the distribution of the tax load or for the relative share of resources to be devoted to collective uses. The requirements of the state were to be accepted as data, and finance theory constituted the analysis of the fiscal structure to determine if these requirements are met in accordance with widely accepted ends of the social group. This positivistic approach, however sterile it may have proven to be, justified Griziotti's defense of public finance as a science.

The problems of tax capitalization and the comparative effects of taxes and public loans have both been important topics in Italian fiscal theory. Space permits only brief discussion of Griziotti's contribution to each of these. In an article written in 1918, he tried to refute the widely accepted doctrine that taxes can be capitalized only in so far as they are partial; that general taxes cannot be capitalized. This view, associated at that time with Seligman and Adams in the United States (and recently advanced anew by Stockfisch) holds that a general tax will reduce both the rate of return and the rate of capitalization and will, therefore, leave capital values unchanged. Griziotti tried to show that the effects of a general tax upon the rate of interest are not at all certain, and that tax capitalization could take place. In this, he supported the more articulate argument of Einaudi, with the result that essentially "correct" views on tax capitalization have characterized most recent Italian work in fiscal theory.

Italian scholars have devoted much attention to the Ricardian proposition that extraordinary taxes and public loans exert equivalent pressure on the economy. De Viti De Marco accepted and elaborated this proposition and opposed it to the so-called common view that public loans do involve a shifting of the tax burden to future generations. Griziotti arose to the defense of the common opinion in a 1917 article, stating that public debt creation does involve a shifting of the burden forward in time. This long essay, if read hurriedly and uncritically by almost any economist trained within the last twenty years, would appear to be sufficient to relegate Griziotti to the ranks of the confused and the unenlightened. But the theory of public debt is urgently in need of repair. When the dust of the current neo-Keynesian orthodoxy is finally cleared away, this Griziotti essay may take its place alongside the works of Bastable and Leroy-Beaulieu in helping to re-establish what is, essentially, the "correct" classical formulation of debt theory.

JAMES M. BUCHANAN

University of Virginia

Finances comparées. By H. LAUFENBURGER. (Paris: Recueil Sirey. 1957. Pp. x, 490. 2.800 fr.)

The literature of public finance in Europe gives much more emphasis to comparisons of tax and expenditure systems of various countries than that of the United States and Great Britain. *Finances comparées* is devoted entirely to this question, presenting a comparison of the systems of government finance

in France, the United States, Great Britain and the USSR. Professor Laufenberger, who will retire in the near future from the chair of public finance in the Faculty of Law at Paris, enjoys a breadth of knowledge of the literature and practice of public finance of various countries that is almost unparalleled, and thus is particularly competent to prepare a work of this type. In a sense this is a third edition of a book which first appeared in 1944, but each edition has been changed so greatly from the previous as to constitute essentially a new book. Particular stress is given to recent developments, proposed reforms, and new literature; the material and statistical data are brought well up into 1956, a remarkable accomplishment for a book which appeared in print early in 1957.

The discussion is by no means equally divided among the four countries covered. The book is particularly useful to the American reader who wishes a survey of the French government financial system, to which greatest emphasis is given. However, the summary of the British and American systems is entirely adequate, and contains only a few minor errors (such as reference to a 26 per cent rate on capital gains in the United States). By contrast the discussion of the USSR tends to be superficial and is derived almost entirely from a few secondary sources. The coverage is in some sections extended to additional countries, particularly Italy and West Germany.

The first part of the book is concerned with governmental budgetary systems, with emphasis placed on their relation to the national economic budgets, which are reviewed in some detail. The increasing importance of this relationship is attributed to the growing role of government finance in the economic system. From this discussion there follows an interesting, if not conclusive, analysis of the problem of the measurement of the relative tax burden in various countries, together with some data for the countries discussed. The role of the governments in economic planning is developed, with emphasis on France since 1945, and on the intermediate position which it occupies in the field of economic planning between the USSR and the Anglo-Saxon countries.

The remainder of this first part is devoted to more technical questions of governmental budgeting, with reference to the operation of the systems in the various countries, the relative role of the legislative and executive branches, the scope of the budgets, deviations from an annual basis, the treatment of trust funds and governmental corporations, and particularly the growing importance of the performance budget. This is attributed primarily to the increasing role of fiscal policy and economic planning. Budget reforms in the United States and France in the last decade are stressed.

The second part is a straightforward comparison of the tax systems of the four countries, the bulk of the space being allocated to income taxation, with stress on the differences among the various countries, particularly in the treatment of corporate profits, and the inadequacy of the French personal income tax system. Attention is given to the various concepts of income, the treatment of capital gains, the general structure of the taxes (single or multiple personal taxes, for example), and deductions. The various approaches to the taxation of corporate profits are reviewed, as well as reform proposals, including a detailed analysis of the report of the British Royal Commission on the Taxation

of Profits and Income, and various systems of accelerated depreciation. The section on sales taxation surveys this form of tax in the four countries, with emphasis on the French reforms in recent years which terminated in the adoption of the value-added tax. Brief reference is given to excise levies, and to state sales taxes in the United States. The book contains no systematic treatment of death duties, property taxes, or highway finance levies.

The third section of the book is intended only as a summary of the question of government debt. In large measure it presents a review of theoretical questions relating to the significance of government borrowing and national debt, without reference to particular countries; later sections note briefly the borrowing policies and debt structure of the four countries.

The author's approach is more descriptive than analytical, yet the book is much more than a bare recital of factual material, largely because the description is organized in terms of an analytical framework, which gives it cohesion. The writing is simple and straightforward, unlike that of some of the author's more philosophical works, which are not easily followed by a person whose native language is not French. The author seeks to develop one central thesis, namely, that of the similarity of the systems of government finance in the four countries, including the USSR; and he concludes the volume with a statement that perhaps the similarities of financial techniques may aid in lessening the gulf between East and West. This emphasis on similarity has one unfortunate effect; the different significance which taxes have in communist and noncommunist countries is not adequately developed.

JOHN F. DUE

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Kaufkraftübertragungen durch öffentliche Finanzen—Ein Beitrag zur Theorie und Statistik der fiskalischen Einkommensredistribution. By GERHARD EISNER. (Winterthur: P. G. Keller. 1956. Pp. xvi, 128.)

"Monetary transfers through public finance, a contribution to the theory and statistics of fiscal redistribution of income" is a doctoral dissertation, written under the distinguished supervision of Professor W. Bickel of Zürich University. The book is a synthetic review and evaluation of doctrines and statistics of income redistribution.

The first chapter, on the concept and process of redistribution, is the least satisfactory of the book. The author fails to identify clearly the notion and forms of income transfer. Some perplexing statements mar this introduction, *e.g.*, the statement that the contribution of the State to national income is equal to the difference between its "real" (*i.e.*, nontransfer) expenditures and its "real" receipts, or to the deficit of the nontransfer account.

In the statistical part, the author reviews the investigations made in Great Britain by Colin Clark, T. Barna, F. Weaver, A. Peacock and P. R. Browning; in the United States by C. Stauffacher, A. Conrad, R. Tucker; in Denmark by K. Lemberg, N. Ussing, F. Zeuthen; and in France by H. Brochier. These studies all concern the redistributive effects of fiscal policy. The author's most original contribution is an attempt to compare internationally the results of the inquiries, by means of a set of coefficients. This leads to the following conclusions: (1) In the United Kingdom as well as in the United States, the

ratio of total fiscal revenues to national income is increasing; (2) The redistributive *potential*, or the extent to which total income can be further equalized vertically, is declining; (3) The income equalization effect of taxation and public expenditures is rather constant through time, and much the same in the United Kingdom and in the United States: only 20 to 30 per cent of public expenditures accrue to income groups which have not contributed their integral share of them; (4) The net redistribution of income is increasing in both countries, not because of the greater progressivity in taxation and benefit scales, but because, with proportionately similar scales, a larger share of national income passes through government.

In the second part of the book, the author looks into economic doctrines for justifications of income redistribution. He surveys Benthamian utilitarianism, Paretian objections to interpersonal comparisons of satisfactions, and Keynesian oversaving worries. This excellent study of the history of thought leads to the conclusion that the extensive redistributions achieved by modern governments are not sustained by any solid or unchallenged economic theory. The foundations of redistributive policies in democratic countries are rather to be sought in ethical and religious ideas that are as old as humanity.

It may be regretted that the impact of redistributive policies upon economic efficiency has hardly been hinted at. But even with its narrow scope, this book is a helpful contribution for those who look for an introductory survey of the subject.

ROGER DEHEM

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International Economics

A Proposal: Key to an Effective Foreign Policy. By MAX F. MILLIKAN and W. W. ROSTOW. (New York: Harper & Brothers. 1957. Pp. xi, 170. $2.75.)

The heart of this book is the proposal that the United States, in cooperation with other developed countries, should assure every underdeveloped country that it can have as much capital as can be used productively. The authors argue for their proposal on two grounds. First, the "most pressing interest [of the United States] is to help the societies of the world develop in ways that will not menace our security—either as a result of their own internal dynamics or because they are weak enough to be used as tools by others" (p. 39). Persuasion toward this goal is a weak tool, and political intervention is likely to backfire. The United States should rely on effective economic support, neutral with respect to political issues, as its means—not particularly to recruit explicit "allies," but to develop political responsibility within the developing countries. "Under modern conditions some improvement in the standard of living, while not enough by itself, is . . . a necessary condition for the development of stable and peaceful societies, and for the survival of democratic institutions" (p. 25). Such societies will not threaten U. S. security.

Second, the United States is easily able to meet its reasonable share of such a program. The authors estimate the amount of additional capital that could be productively absorbed by the underdeveloped countries at $2.5 to $3.5

billion a year. The recent (1953) rate of flow of investment into these areas was about $3 billion, of which $1.3 billions came from Europe, and $1.7 billions came from the United States. Suppose that practically all the added capital flow came from the United States. Then our contribution would rise from $1.7 billions to $4.2 or $5.2 billions, or from 0.4 per cent of our current gross national product to 1.0 per cent or 1.2 per cent. Actually they think the maximum probable burden on the U. S. Treasury would be no more than $2 billion a year, over 80 per cent of which would be loans.

How do the authors obtain their estimate of $2.5 to $3.5 billion a year additional absorptive capacity for external capital? They apply a rough pattern, already presented by Rostow elsewhere and summarized in Chapter 5, that economic growth takes place in three stages. In the first stage, the preconditions of growth—in peoples' attitudes, in organization, and in capital facilities—are set up. Absorptive capacity for capital is low. In the second, the forces for progress become decisive: average and (especially) marginal savings expand, key industries burgeon and earn profits which are reinvested, businessmen (private or public officials) become conspicuous, new techniques spread. Demand for foreign capital reaches its maximum. India is now probably in this stage; Indonesia will be in a few years; certain parts of Africa, in a decade or more. In the third stage, growth is continuous if fluctuating, domestic savings grow abundant, and the need for foreign capital falls.

For all underdeveloped areas save Latin America, the authors assume that the maximum additional absorptive capacity for foreign capital (to be reached about three years after the program is begun) will be 35 per cent of what gross capital formation was in 1953 (p. 156—not 30 to 50 per cent, as erroneously stated on p. 99). For Latin America, the percentage applied is 14. These rough percentages assume that the former areas are, or in only a few years will be, largely in stage 2, and that some main Latin American countries are coming into stage 3, where domestic savings increasingly replace the need for foreign funds.

With this maximum capital inflow of $3.5 billion a year, and assuming a "conservative"—that is, a high—marginal net-investment-output ratio of 3:1, they estimate that there would result a per capita income growth of 1 to 2 per cent a year.

As qualifications to a generally very favorable reaction, I would list the following: (1) The authors believe that consumption cannot be reduced in underdeveloped countries in order to free resources for investment, "since their populations are at the margin of subsistence" (p. 97). The obviously large variations in average real income in these areas make one wonder what meaning can reasonably be given to "margin of subsistence." In many an area the flow of resources into consumption *could* be cut considerably without a rise in mortality rates. I have been impressed in Ceylon by the fact that calories could be obtained by the population in the form of casava at a fraction of their cost in the form of the preferred food, rice—in recent years, at as little as one-sixth or one-seventh. I think the main, and sufficient, arguments against cutting consumption are different—the costs of changing peoples' habits and the effects on incentives. (2) The data on income, income growth, and investment are of course subject to wide error. The marginal net-investment-output ratio, as-

sumed for the underdeveloped areas as a whole to be 3:1, in particular deserves a suspicious stare. The 2.3:1 figure of India's second five-year plan, used by the authors as a benchmark, appears now to have been much too low; probably 3:1 would also be clearly low, by India's current experience. Hence, per capita income growth may well be appreciably lower than the authors estimate—and lower still if rates of population growth (p. 155) rise beyond expectation. (3) The criteria recommended (Ch. 7) for assuring that capital "will be productively used," do just that—and that is not enough. The aim should be that resources flow into channels of *maximum* productivity—not just that they are not wasted. One misses sharply here the notion of a schedule of priorities, in which projects are ranked in accord with their investment return—return being appropriately defined and qualified by social considerations.

These are minor qualifications to the unmistakable excellence of the book. It is well organized and well reasoned, tempered in its evaluations, very readable and sometimes eloquent. It is a useful contribution in the good tradition of political economy.

THEODORE MORGAN

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Problems in the International Comparison of Economic Accounts. Studies in Income and Wealth, Vol. XX. (Princeton: Princeton University Press, for National Bureau of Economic Research. 1957. Pp. x, 406. $8.00.)

The six papers and comments of fourteen economists in this volume deal with a variety of problems of national income, balance of payments, index numbers and international comparisons of economic quantities. Only a selection of these are discussed here.

Morris Copeland seeks a system of accounts adaptable to the needs of all nations. He suggests that it be built upon tables of gross national product emphasizing separate treatment of the corporate sector, inclusion of the financial components of savings of all sectors, subordination of savings and depreciation accounts for noncorporate sectors and elimination of the national income concept.

Important advantages of this approach are: The emphasis on lending and on real investment rather than on savings facilitates the elaboration of the accounts into money-flow and balance-sheet studies. The streamlined treatment of noncorporate sectors aids the simplification of accounts where necessary, since income items and also product entries may be combined without depreciation and savings complications. Finally lending is a cleaner, more objective, measure than savings, and more significant from the Keynesian standpoint which stresses the effects on demand of financial behavior rather than of savings per se.

Gerhard Colm believes that solution of the problems of measuring government product is implied in the distinction between production and consumption. Products such as services of the armed forces, which are substitutes for consumer goods whether the choice is made politically or individually, are final products. Products such as services for business, that are complementary in production, are intermediate. The problem of placing values on government products is handled similarly in terms of substitutability of products. If a

method of valuation makes a dollar of government product the alternative to output of a dollar of other final product, it is correct. Thus Colm finds that services of capital goods owned by governments should be counted in national product, and that the valuation of goods in national income should include indirect taxes. The argument is sound, but would benefit from distinction between substitution from consumer and producer standpoints.

Marilyn Young has provided excellent detailed explanations of the computation of the government accounts by the Office of Business Economics and of the relations of these to government budgetary data. Particularly valuable is the information on accrual concepts used in timing receipts and expenditures. Most impressive perhaps is the explanation of how accounting for passage of a Navy ship through the Panama Canal is accomplished, a problem which would strain the most hard-bitten statistician.

Herbert Woolley presents an 11 by 11 matrix of international transactions for the year 1951. Each entry is the exports in dollars of one of the eleven areas to another. In reconciling data, Woolley has found that asymmetrical treatments by countries of area definitions—particularly for foreign-flag shipping and for oil company transfers—cause serious discrepancies. These problems and revealed patterns of world trade are bases for interesting discussions.

Goods compared between times or places usually show modifications of specifications. Index-number compilers assume that price changes of artificially selected goods measure those for other goods. This can be justified by assumptions regarding the substitutability of outputs in the production process. Dorothy Brady and Abner Hurwitz appear to be examining this approach, but they are also experimenting with an alternative based on substitutions in a consumer's preference function. If commodities have similar demand curves of unit elasticity, the Paasche and Laspeyre price indexes are related so that the relative difference of the indexes equals the covariance of price relatives of individual goods and the reciprocals thereof. Since this is negative, the Paasche index is below the Laspeyre index to a degree, depending mainly on the dispersion of price ratios among commodities. The writers attempt to apply this result by observing that arbitrary matching of goods will increase the dispersion, since the price ratios will depend upon the choice of physical units used for measurement. This is not very successful, but the general approach is promising.

Irving Kravis considers the problem of comparing production and income aggregates of countries of different culture and institutions and particularly the problem of imputing the values of services not entering the market. To determine whether or not a nonmarket activity is product or consumption—work or play—one may consider the effects of rates of pay, using an elasticity coefficient expressing the change in time spent on any activity produced by change in rates of remuneration. The rule is this:

> *Since economic activities are sensitive to changes in reward in alternative activities, they are characterized by high time-allocation elasticities. On the other hand leisure-time activities, which do not respond readily to possibilities of gain in other activities have low time-allocation elasticities* (p. 370, author's italics).

The usefulness of the rule is doubtful. If rates of pay go up, one may give up horseshoes for golf. Possibilities of substitution among leisure activities render them sensitive to rewards.

This problem would be clearer if defined in terms of economic theory. The traditional basis of value theory, that of alternatives, provides a theoretical solution of imputation problems. Household activities for which nothing would be paid to others for performance, such as sleeping and making love, are leisure activities. Others, such as housecleaning and nonworking time itself, for which something would be paid, have value at prices somewhere below the costs of purchase of such services in the market. Statistically this is difficult, theoretically not. This problem, involving choices actually made by individuals, represents one type of problem of international comparisons. Other problems arise when artificially conceived comparisons are sought, such as consumer behavior of transported persons, production under altered circumstances of tastes, trade barriers, population and the like.

The general impression of the volume may be stated in such terms. Meaningful answers to arbitrary questions of comparisons can probably be given when the questions are well defined. The workings of the economies themselves provide answers to other questions.

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United States Imports and World Trade. By HENRY G. AUBREY. (New York: Oxford University Press. 1957. Pp. x, 169. $3.40.)

Aubrey has attempted in this study a rather brave forecast of the value of U.S. imports in the mid-'seventies. Building up from individual commodity volume and price estimates, which comprise about two-thirds of the projected total value, he arrives at some clue to the possible balance of payments for this country, and thus an indication of the probability of any long-lasting "dollar shortage."

Most of his estimates have ranges, for both price and quantity, with a "most likely" middle figure. In 1953 dollars, Aubrey sees our imports almost doubling to about $20 billion. Six commodities account for five-sixths of the anticipated increase: petroleum, coffee, iron ore, newsprint, nickel, and aluminum. While not spelling out the geographical implications in too great detail, it is quite clear that Aubrey expects the major part of the additional outflow of dollars to acrue initially to the Western World, especially Canada, Brazil, and Venezuela. Hence, Western Europe, to improve its dollar position, would find it necessary to expand exports particularly to third areas, a by no means easy task, since, among other adjustments required, would be a reversal of its current import surplus with Canada to a sizeable export surplus. Direct expansion of European exports to this country is not expected to account for a major share of any hoped-for increase in the dollars going to that region.

For quantity estimates of both U.S. imports and domestic production and requirements, Aubrey has leaned heavily on the findings of the Materials Policy ("Paley") Commission, modified by later revisions of population projections. When in doubt, Aubrey has preferred the more conservative—lower

—import estimate. Price estimates were obtained through discussions with informed members of the trade, using the 1953 dollar as a base, so that the price movements are relative only. No significant tariff changes were assumed. As a result of drawing on these various sources, Aubrey's estimates are usually in three levels—low, most likely, and high—and sometimes for each of these there are three estimates, such as when both the price and volume have three possible projected figures.

To assess the probable accuracy of such a study is to enter, of course, into comparative guesswork. It is certainly interesting to get some idea of the magnitude of our trade two decades from now. Obviously, if the signs point to a volume almost twice the current rate, the adjustment of the rest of the world will be far more easily achieved than if the total is a shrinking one. And Aubrey does indicate a substantial rise in the over-all figure.

It is also of interest that most of the anticipated increases will accrue to a very limited number of the world's traders—mainly, the Western Hemisphere. Hence, we have some indication of the type of effort other areas must make to obtain the needed dollars through multilateral trade, *e.g.*, by emphasizing "development goods" (machine tools, electronics, and turbines). And, as already indicated, this will not be simple even in the expanding milieu anticipated—although Aubrey is somewhat more hopeful than this reviewer.

On the other hand, despite the tremendous amount of work that went into the study, the reviewer is left with an uneasy feeling regarding the unforseeable—yet no estimator can be expected to bring such a feeling into his estimating procedure. Considering the dynamic nature of our economy and the rate of technical progress, however, one wonders whether new developments may not shift trade more drastically than the author has allowed for. True, he does recognize this inferentially, for he states that very little of the now unknown is likely to become a sizeable factor twenty years from now. Yet, with company after company reporting that much of their sales come from products not produced a decade before, one wonders whether such foresight is as precise as implied.

Nevertheless, this criticism can be made of any long-range forecast. Hence, the reviewer can only applaud Aubrey's willingness to undertake a difficult task, and admire the thoroughness with which he has accomplished his mission.

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An Introduction to Operations Research. By C. W. CHURCHMAN, R. L. ACKOFF and E. L. ARNOFF. (New York: John Wiley. London: Chapman & Hall. 1957. Pp. x, 645. $12.00.)

Although this book has not been written by economists nor for economists, the authors have rendered a valuable service to the economic profession: the publication of this volume increases by some 50 per cent the quantity and by somewhat more the quality of existing textbooks on operations research.

Operations research is not a branch of economics.[1] It consists, according to the authors (p. 18), in "the application of scientific methods, techniques and tools to problems involving the operations of a system so as to provide those in control of the system with optimal solutions to the problems." This definition is quite acceptable, if one is willing to include in the "problems involving the operations of a system" the problems raised by the structure of the system itself: operations research today provides us with "operational" ways of studying structures as well as "operations." (If anything, the authors have overemphasized the usefulness of operations research techniques for regulating the operations of a system, and underemphasized the usefulness of these techniques for improving upon the structure of a system.)

The "problems" referred to are "executive-type problems encountered in all areas of administration." The fact that "executive-type problems" typically involve the "balancing of at least two conflicting aspects of the system" does not reduce all such problems to economic dimensions—but it indicates that many aspects of the theory of the firm are susceptible of being analyzed by the techniques of operations research. It is, therefore, not surprising that the bulk of the analytical results contained in the book consist in deriving, for specific situations, the precise (mathematical) nature of the "marginal conditions" of the economist. Here lie the interest and significance of this new field for economists. Short of being completely satisfactory, the account of that field given in the book under review is a substantial improvement on previous attempts.

It is not surprising that the quality of the book should be very uneven, since it contains contributions by 15 different authors which were originally used as lecture material for the "Short Course in Operations Research" taught at Case Institute of Technology. Actually, we are offered two separate books under one cover. What I shall call Book I is made up of Parts I, II, III, IX, and X—some 300 pages altogether; it is primarily addressed to "prospective consumers" of operations research; it deals almost entirely with methodology, and it was written primarily by the three authors whose names appear on the cover of the book; no special mathematical training is required from the reader of these parts. What I shall call Book II is made up of Parts IV to VIII, *i.e.*, some 400 pages; it is primarily addressed to "potential practitioners" of operations research; it deals with standard tools and techniques of operations research and it was mostly prepared by other authors; an elementary knowledge of calculus, and occasionally of matrix algebra, is required for the understanding of these parts.

Although most of Book I is of little interest to economists qua economists, it does provide a broad coverage of the main methodological issues encountered in applied operations research. Such an attempt, in a field that is not yet 20 years old, is at the same time meritorious, ambitious, and bound to be only partially successful.

Two sections of Book I are more likely to interest economists. Pages 174-84

[1] The overlap with R. G. D. Allen's new book, *Mathematical Economics* (New York, 1957), is limited to 2 chapters out of 22: those on linear programming and on the theory of games.

give a brief description and illustration of the Monte-Carlo technique.[2] Chapter 6 outlines a procedure for assigning relative values (utilities) to a set of objectives. This procedure, like the early attempts of Fisher and Frisch, is based on an additivity assumption (the utility of A and B is equal to the sum of the utility of A and the utility of B). It provides an iterative procedure for ranking objectives on an "ordered metric scale"[3] and is, therefore, distinct from the cardinal utility approach of modern economics. Surprisingly enough, no attempt is made at assessing the normative implications of a theory of choice from the standpoint of a firm. The discussion of the choice of a decision function in the face of uncertainty (pp. 123-28) is brief and formal. Utility theory is referred to—but not done justice[4]—in a note at the end of Chapter 6, where some of the economic literature is also quoted. Here, as elsewhere in the book, one has the feeling that a more systematic coverage of published material and less reliance on specific studies made by members of the staff of Case Institute of Technology would have enhanced the quality of the product.

Book II provides the reader with a fairly accurate picture of what operations research models are, and of what they can do. It does not, however, provide him with a complete summary of results, nor does it contain important new developments—with one exception later to be mentioned. Essentially, five types of models are discussed: lot-size formulae[5] (Part IV); linear programming (Part V); queuing theory[6] (Part VI); replacement formulae[7] (Part VII); and game theory (Part VIII).

[2] "The Monte-Carlo technique is a procedure by which we can obtain approximate evaluations of mathematical expressions which are built up of one or more probability distribution functions; . . . In essence, the Monte-Carlo technique consists in simulating an experiment to determine some probabilistic property of a population of objects or events by the use of random sampling applied to the components of the objects or events" (p. 175).

[3] This concept has been used extensively by C. H. Coombs; see, *e.g.*, his papers in *Decision Processes*, R. M. Thrall, C. H. Coombs, and R. L. Davis, ed. (New York, 1954).

[4] The reader is left with the wrong impression that utility theory is inadequate because it assumes complete agreement between objective and subjective probabilities. The authors avoid the basic problems raised in that connection by resorting to nonoperational measures of utility and probability. Such a position does not seem to be tenable when probabilities have to be estimated, not by the "decision-maker" himself, but by his agents.

[5] Lot-size formulae are used to compute the quantities of one or more items that should be procured in order to: (1) meet given requirements, that may either be known with certainty or be estimated; (2) minimize a total cost function, including such elements as: fixed and variable procurement costs, inventory carrying costs, run-out costs, etc.; (3) eventually respect such constraints as a fixed storage capacity or a fixed production capacity.

[6] Queuing theory is concerned with the operations of facilities for which the demand is randomly distributed over time and of which the output is subject to random fluctuations. Typical problems that have been studied include: (1) the determination of the optimal number of service facilities; (2) the determination of the optimal load for a service facility; (3) the sequencing of operations to be performed by service facilities.

[7] Replacement formulae aim at guiding investment and maintenance decisions in such respects as the timing of renewals and the selection of the most profitable investment alternatives.

Parts V and VIII are very poor introductions to the important theories with which they deal. The trouble lies mostly in the fact that too much space is devoted to computational aspects, whereas practically none is devoted to analytical results. For instance, Part V presents two alternative procedures for solving the transportation model, explains the simplex technique, and discusses in detail a method of solution for the assignment problem. Yet, no mention is made of the basic theorem stating that the number of "activities" in an optimal solution to a linear programming problem need not exceed the number of constraints.[8]

Part VIII contains a chapter on "bidding models" in which new material is presented with regard to a significant problem. The chapter deals with optimal behavior in auction and closed bidding situations. This is an interesting topic, but unfortunately its treatment is not very satisfactory, because it rests on highly unrealistic tacit assumptions, namely: that the probability of a particular closed bid being successful does not depend upon the amount of the bid (p. 564), or that the bids submitted simultaneously by various competitors are uncorrelated (p. 568).

Part VI (queuing theory) is probably the best of the book. It strikes an elegant balance between the conflicting objectives of theoretical considerations and empirical illustrations. This result is due in large part to Chapter 15, which reprints a "classic" of operations research: L. C. Edie's "Traffic Delays at Toll Booths." This paper has the further merit of going into the matter of estimation of cost parameters, making explicit the nature of the approximations used in the study.

Parts IV and VII (lot-size and replacement formulae) are perhaps best suited as indicators of where operations research stands today. On the one hand, formal solutions to many general problems have been derived. On the other hand, manageable solutions to special problems are available. It is left to the ingenuity of the researcher to reconcile as much as he can his idealized models with the situation he faces while still retaining the advantages of manageable models. In so far as lot-size and replacement formulae go, the book illustrates neatly the possibility of improving upon current business practices by means of analytical reasoning and numerical methods, and it implicitly stresses, for the benefit of the reader who has some knowledge of the field, the need for further theoretical developments.

There are several important results and theories which have not found place in Book II. The most obvious examples are: the theory of teams, the theories of employment and production scheduling over time, dynamic and nonlinear programming. In so far as problem-areas go, the main shortcomings are probably in the fields of organization and communication theories[9] and

[8] This is only intended as an example, typical of the main defects of Parts V and VIII. It is fair to add, however, that many operations research techniques, and linear programming in particular, are more powerful in securing numerical than in securing analytical results. This stems perhaps from the framework in which these techniques have been developed.

[9] These two topics are briefly discussed in Chapter 4.

financial analysis. The omission of the former area is justified by the fact that it would deserve another whole book by itself. That of the latter area is more regrettable, since "internal rates of return" are used in several connections in the book. No systematic approach to their determination is presented—for the simple reason that operations research has not yet studied this problem carefully. This is one area where joint work with economists is called for.

More generally, one may regret the lack of emphasis in the book on problems of parameters-estimation. Such concepts as costs, revenues, capacity, etc. . . . , play an important role in applied operations research studies. Their nature has always interested the economist, their determination the businessman. Both will, unfortunately, learn relatively little in that respect from the book under review.

This is not the place to discuss the important issues raised by the relations of operations research to economics; yet the book throws a vivid light on several aspects of that broad question.

First, although it is becoming clear that the methodology of operations research—with which this book deals in as systematic a fashion as is possible today—should not be of immediate concern to economists, operations research techniques are just as useful to provide microeconomics with empirical content as statistics is in connection with macroeconomics.

Second, although there is nothing in existing operations research results that contradicts directly the basic propositions of the theory of the firm, operations research theory and practice indicate strongly that the significance of these propositions is much more normative than descriptive—and familiarity with this new field makes an economist much more careful in his statements and applications of the traditional model. Qualifications to that model, aiming mostly at dealing with such constraints as joint costs, fixed factors, indivisibilities, capital rationing, etc., are likely to be emphasized in operations research work much more than they have traditionally been (with a few exceptions) in economic writings.

Third, the participation of economists in operations research studies, which is viewed by scholars coming from other disciplines as desirable and important, is likely to lead to significant new developments in economics. Not only will new models of the firm emerge, that will give more precise content and more realism to existing theories, but one may expect their implications for macroeconomics and for economic policy to fill important gaps in our knowledge.

Fourth, the applied operations research literature is a valuable source of information about business practice. The insights thus provided will be the more abundant the more those engaged in operations research will be interested in economic problems. As for the economist, he will find in the book under review an opportunity to assess the potentialities of operations research from the viewpoint of empirical information. For this reason alone, the book is a significant contribution to the economic literature.

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Effects of Price Level Changes on Business Income, Capital, and Taxes. By RALPH COUGHENOUR JONES. (Columbus: American Accounting Association, Ohio University. 1956. Pp. xvi, 199. $4.00; paper, $3.25.)

This book represents an effort to pierce the veil of original cost accounting and to reveal what has happened to the income and wealth of business firms as a result of inflation. Its concern is to show changes in income and wealth by adjusting nominal wealth and income data for changes in the general purchasing power of money. Jones attempts to do this by "showing in abstract or mathematical terms what *necessarily* happens under different sets of assumed conditions " (p. iii, our italics). He does not use empirical data to *test* these implications; instead he selects four firms to *illustrate* his main points.

Jones shows that accounting conventions are blocking an understanding of what happens during inflation, and his attack on original cost accounting enables him to clear the way to better understanding. He correctly emphasizes a fundamental distinction that has been ignored in accounting practice: the distinction between monetary and real assets (or liabilities). Monetary assets are those whose prices are contractually fixed in money units, while real assets are those whose prices are not so fixed in money units but are market-determined. Thus bonds, accounts payable, or money, are money assets or liabilities; the number of dollars due or receivable is specified in the contract or in the asset. Jones asserts that monetary debtors gain and monetary creditors lose through inflation. He does not test this implication nor does he refer the reader to any evidence that supports it.

Furthermore, he deduces that business firms are much greater net monetary creditors than many of us have supposed. He deduces this by treating a large class of monetary debt as if it were *real* debt. In this way he underestimates the extent of monetary indebtedness of business firms. Paradoxically, the pitfall which has trapped Jones is his acceptance of accounting conventions which he initially set out to expose. This is his insistence on recognizing wealth increments only when realized at the time of a sale and conversion to money. Thus, he argues that it would be ridiculous for DuPont to recognize capital gains in the price of GM stock held by DuPont until these capital gains are realized by sale: "First, there is no intention to sell the stock. Second, it is unthinkable that a block of sixty-three million shares could be sold on the market at a price determined by the purchase and sale of a few hundred or a few thousand shares. And third, it is a convention of accounting not to recognize unrealized gains as income" (p. 27). It is indeed hard to expose errors in old conventions if one at the same time reveres them. And it is this dogma of realization that leads Jones into error when deciding which assets to classify as monetary and which as real. He classifies extremely long-term, or permanent monetary debt as real. There is no intention or possibility of retiring it now when prices have risen. Therefore the gains accruing to monetary debtors cannot be realized. Only short-term is a monetary debt because only it is realizable during inflation. This means that long-term debt and preferred stock must be treated as nonmonetary debt. Hence the extent of monetary debts of business firms is underestimated; which leads to his conclusion that holding common stock is

much more like holding bonds than many of us had supposed. Jones offers no empirical evidence to test that implication, nor does he refer to available evidence.

Income tax laws require a treatment of depreciation that overstates taxable income during inflation. Jones is clearly aware of this. But in his illustration of this point he makes another error which again overestimates the extent to which a business firm is a net monetary creditor—that is, holds more monetary asset claims than monetary debts. He writes:

> Assume that an asset installed at a cost of $100,000 has a service life of ten years with no scrap value and that it produces annual revenue of $20,000 before deducting the depreciation charge of $10,000. If the value of the dollar remains constant, half the revenue each year will represent a return of capital and the other half will be net income. According to accepted accounting practice this will be true even though the replacement cost of the particular asset may rise or fall. Suppose, however, that the dollar loses half its purchasing power every year. This extreme rate of loss is assumed merely to make the computations easy. If conventional accounting practice is followed, half the annual revenue will still be reported as a return of capital and half as net income, even in this extreme case. In terms of real capital or purchasing power, the relationship between revenue and depreciation quite obviously is very different. It takes all and not merely half the revenue of the first year to return the purchasing power equivalent of the capital exhausted. During the second year the total revenue is equal to only half of the purchasing power represented by the depreciation charge (P. 46).

Jones seems to have assumed that the value of the output of the machine is independent of the price level. He therefore treats a real asset as if it were a monetary asset. This overstates the magnitude of monetary assets of the firm. Both of his analytic errors lead to overestimates of the net monetary asset status of the firm.

Inflation raises market value of assets over their book value, a point which Jones occasionally neglects. The economic value of used assets, for which the gap between market and book value has widened, is greater in the market than it is for the original user. This is true because new users can depreciate on the basis of market price not original cost. This has been of considerable relevance for business policy in recent years and must have had some role in creating purchases and sales of assets that would otherwise not have occurred.

From the point of view of the Treasury, assets can only be depreciated on the basis of original cost. However this does not imply that stockholders lose the difference between the purchasing power of the dollars originally expended and the purchasing power of the dollars "realized" through depreciation allowances. Clearly the replacement of assets must be economically justifiable by a rate of return after taxes based on current costs. But the costs of new and second-hand assets are related. Therefore if the stock of capital is maintained, this implies that the yield on old assets must be related to their current values as agents of production, not original costs. This means that the yield of these assets, out of which depreciation allowances are "realized" must be larger

than it would have been in the absence of inflation. Therefore the money available to be set aside is larger.

In the second and third parts of the book Jones illustrates how corporate income accounting based on original costs for real assets and inventories leads to overestimates of current profits and taxable income. He illustrates this for various rates of inflation, permissible depreciation policy and growth rates of the firm.

One of Jones' four firms which he investigates to illustrate his analysis is a public utility. He argues that its rates are set on the basis of original cost rather than replacement cost. Therefore although this utility has an enormous debt, the stockholders are not allowed to keep the wealth lost by the bondholders, because these gains are transferred to the public utility's customers via prices that are lower than costs. He describes this case by creating the classification of quasimonetary assets which are assets that are real but which are monetary from the point of view of their yield. This makes inflation a negative sum game between creditors and debtors and a positive sum net gain game for public utility customers. It seems more direct to say not that stockholders do not gain at the expense of bondholders, but that the public utility commission does not permit them to keep the gains. This argument is not applicable to nonrate-regulated industries.

His main recommendations are that business firms should classify their accounts in balance-sheet reporting into monetary and real accounts. This is indeed a sensible but possibly premature suggestion. Greater conceptual clarity and empirical validation would be helpful. He also recommends that depreciation accounting be based on replacement costs and offers suggestions as to how this could be done. In sum the author has tackled an important problem, he has perceived an important distinction in asset classification, but accounting conventions have been given too much reverence. The consequent mixture of penetrating insight and economic analytic error is a bit disturbing to the careful reader. Of primary critical importance however is reliance upon assumption and logic to derive implications that, with actual data, are illustrated instead of tested.

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Price Level Changes and Financial Statements—Case Studies of Four Companies. By Ralph C. Jones. *Price Level Changes and Financial Statements—Basic Concepts and Methods.* By Perry Mason. (Columbus: American Accounting Association, Ohio State University. 1955-1956. Pp. 179; 28.)

These publications of the American Accounting Association, together with *Effects of Price Level Changes on Business Income, Capital, and Taxes,* by Ralph C. Jones (also reviewed in this issue, p. 1051) are the product of four years of research into the effects of general price level changes on reported business capital and income and represent essentially three facets of the same

theme so are treated in this review as one work. Their objectives were to: (1) develop techniques for preparing supplementary financial statements expressed in constant-value units; (2) compare the results of uniform-dollar statements with conventional, historical-dollar statements for specific firms; and (3) provide information for evaluating uniform-dollar statements. In seeking to meet these objectives they have essentially followed the path identified with H. S. Sweeney whose book *Stabilized Accounting* (New York, 1936) recommended converting each account into current values by means of a general price index. Sweeney's work, in turn, was based on his study of German methods of accounting during the inflation of the 1920's. The publications here reviewed have carried the uniform-dollar approach far enough to provide a basis for evaluating the index-adjustment solution to the problem of business financial reports in a world of changing monetary values.

In brief, the authors are concerned with the fact that reported business income is the difference between sales—stated in fairly current dollars—and expenses which are partly (especially depreciation) measured by dollars of earlier periods. Also, the balance sheet contains accounts that may be dollar-dated over a range of 20 years or more. As they point out, this is analogous to adding amounts stated in pounds, pesos, and francs to amounts in dollars without first converting the foreign currencies by appropriate exchange rates.

The solution proposed in these books is to adjust all accounts in the income statement and balance sheet by an index number representing the general price level (the consumers' price index is recommended), with the most recent period as the base. Each account is multiplied by the index value that is chronologically appropriate. A building acquired 5 years ago would have a different adjustment factor than a 10-year old building, and the depreciation on both would be adjusted accordingly. Thus income statements and balance sheets would be reported as if the dollar had always been at its most recent value.

The major conclusions from their case studies and theoretical analyses are these: (1) Fluctuations in the price level, *e.g.*, the substantial inflation since the late 1930's, considerably impair the usefulness of financial statements based entirely on historical costs. (2) The major discrepancy between net income reported by historical-cost methods instead of current dollars arises from the difference between depreciation based on original cost in historical-dollars compared to current-dollars. (3) Because depreciation deductions are limited, for income tax purposes, to original cost in historical dollars real rates of taxation are raised above nominal rates during and after periods of inflation. (4) Management and investors are unlikely to realize, as accurately as they would if they used adjusted figures, that inflation makes a substantial part of reported earnings (based on historical dollars) fictitious in a real sense; as a result management is likely to distribute through dividends part of the company's capital.

With most of the conclusions economists are familiar; for example, the role of inflation as a tax collector. However, the careful analytical and inductive research in these studies provides further support for their beliefs. One con-

clusion, however, will seem surprising to economists who believe that creeping inflation is generally helpful to business firms since sales dollars measured in current prices are matched against expenses incurred during previous periods of lower prices. If the samples studied in these reports are representative, business firms even during the exceedingly prosperous period of the 1940's, failed to earn, after taxes, as much as 5 per cent on investors' equity measured in real terms. It is worth questioning whether business firms can long continue to attract risk capital if the real rate of return remains so low.

The studies raise several questions, all of which are at least partly answered by the authors. Should all firms' accounts be adjusted by a common index, measuring the general price level or should different indexes apply to different companies and different products? If a common index is used, should it be the consumers' price index, the wholesale commodity price index, or the gross national product price deflator? Should purchasing power gains (or losses) on either monetary investments or nonmonetary investments be taken into consideration even though unrealized?

One of the most fundamental questions is only implicitly raised. If the accepted accounting practice of using historical costs is abandoned, accountants could move to the half-way station described in these books, where the historical-cost approach is followed but the accounts are measured in a constant-value unit, or they can go further and adopt the economic view that the true worth of assets is the present value of their discounted future earnings. Conceptually this latter position is the more tenable, but accountants are understandably reluctant to use it since it involves so many arbitrary estimates. However, the constant-dollar adjustment device, when carefully observed, involves so many acts of judgment that it seems to be as susceptible to this criticism as the more extreme present-value approach, in which case the economic logic of the present-value approach might argue for its adoption if accountants are ever to abandon the present historical-cost method.

Since management is presumably striving to maximize profit regardless of the value placed on the profit, the question arises whether uniform-dollar accounting is any more useful in helping management make good business decisions than historical-cost accounting. It might seem that management's position is analogous to the bridge-player who will play his best whether the stakes at the end of the game are announced to be a penny or a half-penny a point. But Jones and his associates report that they found management decisions on such things as the amount of dividends, the price charged for the product (especially in regulated industries), and capital structure were influenced by the numbers reported in accounting statements. Therefore, it seems that, for management purposes, adjusted financial statements would be useful if for no other reason than to alert the executives to the limitations of accepted accounting reports.

Finally, these studies raise a serious question about the level of the corporate income tax in real terms. During and after inflationary periods it is higher than the nominal rates; the opposite being true for deflation. The implications of this involve consideration of stabilization policy, growth

policy, and government fiscal matters that clearly deserve more attention. It is to be hoped these studies will encourage and provide part of the foundation for such tax analysis.

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Analysis for Production Management. By E. H. BOWMAN and R. B. FETTER. (Homewood, Ill.: Richard D. Irwin. 1957. Pp. xiii, 503. $6.50.)

We are often advised to do good, rarely how to do good, or even what good to do. Many would prefer to do well, but this know-how is perhaps as elusive as the other. In recent years, work in economics, applied mathematics, statistics, operations analysis, management science and related fields has been directed toward producing know-how about what and how to optimize. Those interested in doing well do well to pay attention to these developments. The book under review is a text designed to present some of this recently developed how-to-do-it information to students of industrial management or industrial engineering. It is, as far as I know, the first of what is sure to be a long series of books of this general kind. As harbinger of the coming season, it perhaps deserves special notice.

The book is aimed at students who have had an introduction to calculus, a course in statistics and a course in mathematics. Students who have had these courses, and remember no more of them than students generally do, should have no special difficulties because of deficiencies of background.

The book is devoted to the application of formal analytical methods to the problems of production management, rather broadly conceived. The aim is to present methods rather than theory, and consequently the emphasis is on elucidating the methods and their uses, rather than on including many "methods" in a single generally stated type of analysis. Thus, one finds something called "Total Value Analysis" and something else called "Incremental Analysis" presented as two different methods. The distinction between them is that Total Value Analysis involves maximizing some quantity such as profit by solving the equation obtained by setting its derivative equal to zero. The corresponding "Incremental Analysis" problem involves equating the derivative to zero directly without considering the function whose derivative it is. The authors, of course, suffer from no confusion about the relationship between these two types of analysis; they evidently prefer to distinguish them as methods of analysis because they involve different concrete procedures when applied to a particular problem. This point of view may seem strange to theoretical economists, but it is widely held by students and particularly cherished by engineering students. On the other hand, economists are likely to find congenial the extensive use of examples, including numerical examples, as vehicles for presenting the methods. These presentations are simply, directly and clearly written, though economists who suffer from terminological chauvinism will find small annoyances here and there.

The book contains four main blocks of material. The first, called *Orientation*, tells what production management is all about, presents *dicta* on scientific

methods and gives an account of the standard graphical and schematic methods used by industrial engineers. This section occupies about 80 pages, of which about 40 deal with the engineering methods. In view of the spirit of the subsequent material it may be conjectured that this was included *"pour épater le bourgeois."*

The second major section presents mathematical programming methods. An exposition of the linear programming model and simplex method of solution is given; the special case of transportation problems is presented. The authors also give a brief introduction to dynamic programming in an example with discrete time. Some 70 pages are devoted to these subjects.

The third major subdivision includes statistical material. Sampling inspection and quality control are treated rather thoroughly as well as certain subjects involving the analysis of variance. Some 65 pages are devoted to this material.

The fourth main section is called *Economic Analysis* and includes "Total Value Analysis," "Incremental Analysis" (already referred to above) and "Equipment Investment Analysis." The examples include the so-called economic lot-size problem, an inventory problem and a waiting-line problem. Some of the problems involve uncertainty. There is then a short discussion of the use of Monte Carlo methods, illustrated by a problem of maintenance policy. The final chapter of this section treats equipment replacement and presents the standard Lutz-Preinreich-Terborgh treatments. The presentation is clear and direct. The inadequacies of this mode of approach to the problem are not to be charged against a textbook in which they are correctly presented as the best available methods. Perhaps the authors are wise not to fill the air with qualifying remarks concerning the theoretical adequacy of these methods. Students display a deplorable reluctance to devote hard effort to the mastery of useless things, as well as a tendency to leap like grasshoppers to the nearest visible conclusion.

A collection of ten "cases" occupies the final 120 pages of text. Each case is a story of a business situation, told in great detail and with an effort to achieve realism. The case method and case materials are not widely used in the teaching of economics and so perhaps deserve an extra word here. These cases are presented so that the reader may see in the natural habitat instances of applicability of the methods presented in the text. The use of cases, as distinguished from the problems, or exercises, found at the end of each chapter in the text is, one imagines, designed to encourage the reader to acquire a sense of the chaotic complexity of problems as encountered in the raw. This experience (perhaps it should be called shadow-experience) will, it is hoped, save the neophyte from mental paralysis in the face of a real live "case." Real cases are required on the ground that "only God can make a tree." Whether a stiff workout with stuffed animals will enable the trainer to deal more effectively with the raging lions is difficult to say. The effectiveness of the cases in this book will depend to a great extent on the students who use them. My own opinion is that they are likely to prove useful. Cases are different from mere problems and supplement them rather nicely in connection with

material of the kind presented in this book. Teachers of economics might do well to make more use of this kind of material.

The book concludes with some 30 pages of appendixes, including reprints of statistical tables useful in connection with the text.

In a market economy there is, perhaps, no higher praise to be offered to the authors of a commercial textbook than to adopt it for classroom use. I intend to try this one myself.

STANLEY REITER

Purdue University

Marketing Behavior and Executive Action—A Functionalist Approach to Marketing Theory. By WROE ALDERSON. (Homewood, Ill.; Richard D. Irwin. 1957. Pp. viii, 487. $6.50.)

Once in a while an author produces a book which is one of those happy marriages of information and insight. This is such a book. Alderson's keen observation and analysis of contemporary marketing theory and practice stamps this book as an outstanding performance. In fact, its very vitality makes it hard to confine the volume's ideas within the compass of a brief review, and consequently the present discussion may convey only a fragmentary notion of the book's worth.

Most salient is the freshness of the approach. It is an eclectic one in the best sense. Alderson combines psychology, economics, sociology, marketing, etc., both illustratively and substantively. He gives this approach a new label —Functionalism—not precisely distinguished, but why cavil? Distinguishing his approach from the more traditional commodity and institutional approaches of marketing theory, Alderson defines his functionalism as "an aspect of a general theory of human behavior" (p. 24). For Alderson, marketing is an organized behavior system with patterns of power and communication, inputs and outputs and internal and external adjustments. This is indeed almost a sociology of marketing. These ideas are first examined in the preliminary chapters which relate marketing to the other behavioral sciences, and represent an attempt to establish the rationale of the functional approach. In Part II, the heart of the book, Alderson applies the conceptions developed in the opening chapters. Part II is captioned "The Theory of Market Behavior," and it can be summarized by using his own words (p. 99):

> The functionalist approach to *competition* emphasizes rivalry within and among behavior systems in the search for differential advantage. *Negotiation* is a major topic in the present view, accounting for what may be called the vertical relationships of behavior systems as compared to the horizontal relationships constituting competition. The treatment of *consumer motivation* takes the household as the fundamental unit and considers aspects of its structure and functions which determine the course of consumer buying. The discussion of *exchange* describes the four aspects of *sorting* which produce economies in matching supply and demand. *Price* is discussed in terms of the uses and limitations of the marginal analysis. Some basic problems of *price policy* are also discussed, including the overriding problem of maintaining an integrated price structure. The possibilities of creative marketing in stimulating demand are considered

with respect to such processes as product *innovation and advertising*. The *market transaction* is analyzed to show how it has been modified to increase marketing efficiency. Finally, the *dynamic character of modern markets* is shown to rest on competitive efforts at market organization. (The italicized phrases indicate the subject matter of the eight chapters comprising Part II).

It can be seen from this, that this book attempts to recast marketing theory into a new mold. There is a profusion of novel insights into economic and marketing problems. For example, in discussing bilateral monopoly Alderson declares that agreements between manufacturers and distributors might well be productive of low prices to consumers rather than high prices as postulated by orthodox theory. In fact he states that he "has yet to see any real cases which would support the theoretical possibility . . ." (p. 135). At another point, in analyzing what he calls "Matching and Sorting: The Logic of Exchange," Alderson contributes the interesting notion of technological distance between producer and consumer. This is the idea that goods are assorted (or matched) in accordance with market functions, each stage of the market producing different assortments, and the whole tied together into a smoothly functioning system by the channels of marketing (pp. 215-16). Many other illuminating ideas could be cited.

Of greater interest to economists perhaps, would be Alderson's discussion of marginal analysis, indifference and substitutability (Ch. 8). The theoretical level is neither high nor rigorous, but it must be remembered that this is a textbook in an applied field. This is not intended to belittle nor excuse. Alderson's superior gifts of analysis and perceptive insight are evident on every page. In fact, perusal of even the brief critique of marginal analysis in the work may yet serve as a useful reminder to those theorists who, enamored of the logic of the graphs and equations they develop, come to believe that human beings may actually behave in accordance with their devices. Alderson comments: "Marginal analysis applies to elements which can somehow be reduced to a common quantitative basis. When this cannot be done, there are key management decisions which lie beyond the reach of the marginal approach" (p. 244).

What does all this lead to? Part III attempts to furnish the answer. In this section, the previously developed concepts are utilized for the purpose of providing a guide to executive action in the market place. The final chapter, for example, evaluates such matters as the marketing approach to quality control; marketing analysis and organization problems; marketing and investment planning. In the closing pages of this chapter, however, Alderson philosophizes concerning the forces of change within our economy and our society. Here he is less successful than in the technical areas of discussion. In detailing the fate of our economy according to Marx, Schumpeter and Charles F. Roos (an interesting trinity!) he is somewhat diffuse and lacking in the bite and clarity which characterize the remainder of the book. It is possible that the mechanics of textbook production required its inclusion, but it is obvious that a subject of such magnitude cannot be adequately treated in a few pages relegated to the end of the book.

Summing up, there can be no question that this book is worth many times

the price of admission, and as a text in marketing theory it is far superior to practically all that have gone before.

DANIEL FEINBERG

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Industrial Organization; Government and Business; Industry Studies

The Politics of Industry. By WALTON HAMILTON. William W. Cook Foundation lectures 1955. (New York: Alfred A. Knopf. 1957. Pp. xvi, 169. $3.50.)

In recent times, as economists have become increasingly concerned with respectability, it has come about that some of the older generation seem very young in their surviving criticism and complaint, just as some of the younger seem very old in their amiable conformity. Walton Hamilton is less young in years than others. This book is based on lectures given at the University of Michigan where he studied under Fred M. Taylor, Henry C. Adams, and others when the century was still new. But throughout there is a fine, youthful exuberance which manifests itself in repeated assaults on the more comfortable *clichés* of free enterprise and a marked conviction that the economic world could still do with some remaking. The essays are also both lucid and learned as befits a man who has combined a career as lawyer, public servant, economist, and instructor in medieval history. They are spiced with gay and wicked humor—he has Adam Smith observing that lawyers do not meet, even on the most innocent of occasions, without causing an increase in the price of retainers—and are altogether a delight.

The author begins by attacking the notion that a sharp line divides the sphere and functions of the private firm from that of government—a notion that is at once so oversimplified as to be all but simple-minded and that rules in at least nine-tenths of our economic and political comment. For while the professional business orator proclaims the need for preserving the integrity of private enterprise in face of the inroads of public authority, the private corporation has long been occupied in appropriating the authority of the national state for its own purposes. It is Hamilton's view that this tendency is proceeding at an accelerating rate and that we are by way of having a rebirth of the "honorable" trading company which reinforces ordinary functions with a *de facto* grant of public authority. The several lectures are concerned with various ways in which this power is won—by having control of the public regulatory process, as the railroads have, if not controlled, at least profoundly influenced the Interstate Commerce Commission; through skillful manipulation of the patent law; through international operations that, in effect, transcend national authority; and in many other less portentous ways.

This description is the heart of the book. Through it runs a strong undertone of criticism—the sense that these things shouldn't be. And in the last chapter the author has a few things to say about what might be done. Since he has already shown that the regulation of the regulators is an admirable device for

turning public power to corporate purpose, he is a little handicapped when it comes to urging stronger government regulation. He has a nostalgic affection for the antitrust laws, but he is too realistic to regard the courts as an instrument of sweeping reform. And so it transpired that the author left Ann Arbor without offering any very solid proposals about the things that give him discomfort. That is a fault, but not a fatal one. As an assault on pompous simplification this is more than a day's work.

J. K. GALBRAITH

Harvard University

The Cotton Industry in Britain. By R. ROBSON. (London: Macmillan & Co., Ltd. New York: St. Martin's Press. 1957. Pp. xx, 364. $10.00.)

This completely informed account of an historic industry—its organization, recent trends, and prospects—is by the Director of Statistics of the Cotton Board, Manchester. It is of peculiar and immediate value to the trade, whether in Britain or in other countries where textile manufacture is established or contemplated. Besides this specialized use, the work has significance for international economic policy in many departments. While the complications of the subject are recited, analysis leads to judicious conclusions which deserve to be pondered in industrial and official quarters. Statistical exhibits clarify, do not clutter.

World developments in the period embracing the two wars and coming to the present are illustrated in this appraisal of the mistress of manufactures. Agriculture, finance, commerce, labor and standards of living in remote places are tied into the problems of Lancashire. This will remain true because, as this study is the latest to confirm, distance of cotton factory from cotton field is relatively unimportant. Since cotton, once ginned, involves little waste in fabrication, nearness of mill to market may balance the advantage of proximity of another mill to raw material.

What may be called the textile complex is here explored—the advent of synthetic fibers as competitors and as complements to cotton. The benefits and perils of integration, particularly vertical integration, under a single firm are examined in a fashion meaningful for the United States where the project of combining every process from cotton to final customer of cloth has had a whirl. Productivity trends are explained, with assignment of causes and consequences.

The last chapter, on "The Future of the Industry," will attract the eye of every reader. This is projected against a background of declining percentage expenditure on clothing, due to income changes, increasing age of the population, high prices, and the attraction of other consumer goods in greater variety than formerly. The production of household textiles has likewise declined. Fortunately, industrial uses demand a volume three times that of forty years ago. As the textile industry, technologically mature, may be easily established anywhere, it tends to drift to low-wage areas which begin to supply their own home markets and enter export as well. For this reason lagging productivity in the British industry gives concern. Mr. Robson is sure that protection is required, but also urges that concentration and a high degree of specialization,

serviceable in the past, may be detriments to new ideas and new entrants which a more decentralized industry may provide.

BROADUS MITCHELL

Rutgers University

Concentration in Canadian Manufacturing Industries. By GIDEON ROSENBLUTH. (Princeton: Princeton University Press, for National Bureau of Economic Research. Pp. xv, 152. $3.50.)

Just as the cover of a book may be misleading so may its title, and it is a common experience to feel that an author has cheated by promising more in the title than the contents deliver. Rosenbluth's book reverses this and contains considerably more than is implied in the title. His study, which started out as a Columbia doctoral dissertation, turns out to be not only a compilation of the Canadian figures on manufacturing concentration ratios but also a study of the forces making for high and low concentration ratios. It is this latter aspect of the book that gives it generality beyond its title and justifies the fly-leaf claim that it "should interest not only those concerned with the problems of concentration and monopoly, but also students of firm size, economies of scale, industrial growth trends, the relation between plant and firms, and other aspects of industrial structure."

The major findings on the causes of high concentration are that it is a matter of big firms, in small industries, producing products having relatively low transportation costs, and a high capital-labor ratio. It should be noted that size of firms is more important in causing high concentration than inequality of firms size. The finding that the larger the industry the lower the concentration raises the question of whether or not industry growth generally brings with it a decrease in concentration. It also brings up the question of whether the definition of industry is consistent. Is a smaller industry one that has a finer classification of product?

On the question of differences between plant and company concentration Rosenbluth found that large companies were more apt to have multiplant operations and their plants were apt to be larger as well. The existence of multiplant operations reflected either transportation barriers or mergers.

A comparison of 1947 data on U.S. industries with the 1948 Canadian data finds that in general the pattern of concentration is very similar but the Canadian industries are more concentrated. This is of course consistent with the importance of industry-size as a concomitant of concentration.

An analysis of time trends in concentration was handicapped by a lack of data. There were figures on over-all concentration in output and employment on a plant basis going back to the early 1920's. Rosenbluth did what he could to separate the shifts in the relative importance of concentrated industries from the shifts in concentration proper but the results are sketchy. They support the optimistic view that the growth of the market proceeds faster than the technological and other forces making for larger plants, and that consequently the average level of concentration in industries has probably decreased with growth. The wartime "increases" in concentration seem to have been connected

with shifts in the relative importance of industries. This subject of growth and concentration needs further exploration with better statistical sources.

No attempt has been made in this review to cover the research methods used. There is some methodological novelty but for the most part the work represents a careful study using standard techniques. One is tempted to comment that our profession needs more of this type of solid scholarly work and less of the grand argumentative discourses. This book, without question, adds to our store of knowledge and deserves a wide reading.

CHARLES R. DEAN

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United States Shipping Policy. By WYTZE GORTER. (New York: Harper Brothers, for Council on Foreign Relations. 1956. Pp. xx, 230. $5.00.)

This book is the product of extended and comprehensive study by a competent student of the problem. It deals with the development and present status of the maritime industries, including shipbuilding and ship operation.

The policies of the federal government, both historically and current, affecting these industries are dealt with at two levels: analytically to give the reader a complete background of the origin and development of the policies, and critically as a basis for the author's suggestion as to revisions of policy which might be better designed to achieve the state goals of national policy in this field.

The central core of the problem with which Gorter deals is reflected in the fact that the United States shipbuilding industry has been rescued twice from near extinction by large-scale war. Of the total output of ships from U. S. yards in the 41-year period 1914 to 1955, 86 per cent was produced in the nine years, 1917-1920 and 1942-1946.

The two fundamental problems in this area of national policy and action with which legislators have been attempting to deal and for which they apparently have not yet found a satisfactory solution are: (1) how to maintain a merchant fleet, either active or in storage during interwar periods, of sufficient size and quality to avoid the hastily improvised and costly construction to meet the exigencies of war conditions—characteristic of two past experiences, and (2) how to maintain during "normal" world conditions, a U. S. flag merchant marine adequate to meet the assumed or real needs of American shipping at the lowest economic cost to the nation.

There are three basic components of stated national policy designed to achieve these objectives, and two subsidiary lines of action or policies which have a bearing on the effectiveness of basic policy. Gorter's book describes in detail, both analytically and critically, each of these policies, and makes the following general findings and conclusions:

1. *Assistance to Shipbuilders.* Gorter critizes the present policy on the following grounds: (a) It has not been so applied as to support the required minimum of shipbuilding facilities for military requirements. (b) The present policy unwisely links the problems of construction and disposal. Since the Maritime Administration holds a large number of reserve ships and since the

peacetime demand of American operators usually is not sufficient to maintain the essential nucleus, helping operators is not the best way to sustain the shipbuilding industry. (c) As an essential defense industry, shipbuilding should not depend largely upon the availability of private capital. The government should use the subsidy program to make up the difference between private orders and the essential nucleus of shipbuilding. If domestic ship orders exceed the national defense level, surplus orders to foreign yards should be allowed without American ship operators losing the benefit of the operating subsidy.

2. *Ship-operating Subsidies.* Based on available figures of military requirements, Gorter concludes that in spite of the subsidy program the tonnage of merchant shipping falls short of satisfying the minimum defense needs by about 2 million deadweight tons, or about 1/5 of the active U. S. merchant marine. The commercial results of the operating subsidy program are not precisely determined, but probably it has improved the quality of the merchant marine. The cost of subsidies is modest in comparison with total government expenditures, vessel operating revenue and vessel operating expense, but is large compared with the net operating profits of American operators. Subsidies are relatively inoffensive to foreign operators, are unlikely to invite retaliation, and retain the competition of the conference system. Gorter concludes that granting operating subsidies on essential routes leaves a substantial area of shipping to private competition free of government subsidies and is preferable to a general navigation bounty.

3. *Cargo Preference.* The cargo-preference policy is of vital importance to ship operators, particularly to U. S. tramp operators. The present tramp fleet is to a great extent a creature of the 50 per cent provision. U. S. tramp operators cannot compete effectively with their foreign counterparts because of high costs. The advantage of tramp shipping is its usefulness to the military. Trampers are flexible; their crews have wide experience. Most tramp ships, however, are liberty ships having large deadweight capacity but speeds (10 knots) dangerously slow for convoy operations. The government might more cheaply modernize reserve libertys—and at the same time give some aid to U. S. shipbuilders—than retain cargo preference to keep middle-aged obsolete tramp vessels in operation.

Subsidized liner companies favor cargo preference, which they allegedly need for adequate revenue. They state that without cargo preference most aid cargoes would move in foreign flag vessels to save dollars and that discrimination against U. S. flag vessels by foreign countries would become intolerable without cargo preference. Gorter opposes this argument. Cargo preference itself, he says, is a form of discrimination, and the best way to remove it is through negotiation rather than through counterdiscriminatory measures. The elimination of cargo preference, Gorter suggests, might hurt foreign-trade liner operators less than their unsubsidized U. S. flag competitors.

Generally, Gorter concludes that cargo preference is inconsistent with the general aims of U. S. foreign economic policy and that it cannot be defended as an economical way to build up a nucleus merchant marine for national defense. The effects of eliminating cargo preference legislation, however, should be evaluated in the light of defense requirements.

4. *Shipping Conferences.* Gorter believes that present policy is "best" in that it requires open conferences and fair rates without damaging our relations with other nations.

5. *Military Sea-Transport Service.* In view of national defense requirements, the government must operate a fleet over which it has full control, without danger of interruption from labor disputes or other sources. The MSTS policy of making full use of cargo space aboard its own vessels—rather than dividing shipments between MSTS and American private vessels—is economically defensible.

Gorter suggests the possibility of allowing greater use of foreign carriers, particularly of NATO country flag vessels, to reduce the cost of military shipping, to increase the strength of NATO countries, and as a bargaining tool to offer foreign nations advantages for which the United States may negotiate diplomatic concessions.

Undoubtedly, some students of this problem will find that Gorter's analysis emphasizes "internationalism" to the extent that, especially with reference to the "cargo preference" issue, it would appear to give heavier weighting to the objectives of international diplomacy than to the real or assumed economic interests of U. S.-flag vessel operators. Gorter's book, however, represents the most comprehensive analysis of this highly controversial and important phase of national policy; it is well organized, well written, and is a scholarly treatment of the subject.

CHARLES L. DEARING

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The Economics of European Air Transport. By STEPHEN WHEATCROFT. (Cambridge: Harvard University Press. 1956. Pp. xxii, 358. $6.00.)

This book is, in the judgment of the reviewer, the best economic analysis of air transport which has yet come into print. Mr. Wheatcroft's study reflects the environment of the European air carriers, many of which have problems—notably political—fortunately not encountered by domestic carriers in the United States. Nevertheless, the analysis is so basic that it can well serve as a guide to understanding the economics of air transport in any part of the world. In fact, students of American air transport economics would do well to look to this book for such guidance.

Wheatcroft has made a careful study of European air transport operations outside the Iron Curtain, and has drawn heavily on studies made both in Europe and the United States, particularly by the Air Research Bureau, a research organization sponsored by six major European carriers. He has also used effectively operating and financial statistics of individual airlines, government agencies, and such international air transport associations as the International Air Transport Association and the International Civil Aviation Organization. Because of the author's training in economics and experience in the airline business and in the International Air Transport Association, his research has resulted in a clear, accurate, and incisive analysis of the economics of air transportation.

One part of the book deals with the European airline industry, with particular reference to the economics of short-haul air transport, which is so characteristic of European air transport operations, and its effect on economics of aircraft size, operational efficiency and costs, and rate structures. The second principal part of the book describes and analyzes the problems of competition and regulation, especially the problems created by the fact that most free European air schedules tend to be international in a geographic and traffic area smaller than the United States. The third part of the book summarizes the problems involved and offers various requirements for air transport progress. Wheatcroft concludes that the possibilities for lowering costs, increasing traffic, and strengthening European air transport depend upon greater government and airline cooperation in this market. In fact, he finally recommends a regional organization for European Air Transport in the form of an effective and strong European Civil Aviation Conference, an organization toward which a start was made as the result of the Strasbourg Conference of 1954.

From the standpoint of the economist, the first part of the book will provoke the greatest interest. Wheatcroft outlines and supports with data some rather significant economic principles of air transport. Since European stage lengths are approximately 250 miles, the suitability of an airplane for European operations must rest very largely on its ability to operate efficiently at these ranges. He finds most aircraft in service are designed to operated most efficiently at much longer ranges, although competitive factors, under which large airplanes are more attractive to passengers, explain in part the reasons for this inefficiency. However, Wheatcroft properly suggests that large airplanes could be designed for the short-haul market and these, by utilizing payload for passengers instead of fuel, would be very much more efficient.

The author also concludes that the higher costs of European air transport operations as compared to American experience arise not so much from the short hauls themselves, particularly if a suitable large airplane were to be designed, but rather from the low intensity of operations. Moreover, the problem of intensity can be changed by economic regulation, the implication being that joint political action of the countries of Europe might both limit the number of carriers and the proliferation of routes, and also might remove some of the political restrictions which make it impossible for most European airlines to operate unrestricted frequencies.

In his analysis of the size and efficiency of airline operation in Europe, Wheatcroft found in Europe what has been found by the reviewer and others in America. While there may be considerable differences in efficiency between the very small and the larger carriers, there is evidence that the economies of scale are fairly early offset by diseconomies of size, and the over-all cost curve tends to flatten beyond the scale of output of the medium-size airlines. This would indicate that profitability tends more to be associated with frequency of flights and density of traffic. This finding argues, as Wheatcroft points out, toward some control of number of companies to eliminate the very small airlines, but does not support the proposal often made in Europe that there be a single amalgamated airline.

Wheatcroft finds increased support for cost reduction as the salvation of the

European airlines when he turns to his analysis of fares. In terms of existing costs, he finds that these airlines, especially with the increase in tourist traffic and decrease of fares, have underpriced their services. But, when compared to the cost of European surface carriers, the air fares are still too high to compete effectively for the mass market. Thus, despite the natural tendency for governments (which subsidize or support most European airlines) to conclude that the way out of a loss situation is to raise fares, Wheatcroft comes to the sound conclusion that the solution lies in intensified operations at lower costs and lowered fares.

On the basis of his analysis, Wheatcroft concludes that some reduction in airlines and route operations is necessary to get greater intensification of traffic and that more attempts should be made both by governments and the airlines to cooperate in planning, investment programming, use of station facilities, passenger handling, and other areas where individual duplicated operations are inefficient. He believes that much of the answer for economic health of the European airlines is a kind of cartelization of air transport under a central regulatory agency with powers to effectuate unified route and service planning and to encourage or enforce coordination.

While this kind of united effort in Europe might solve many of the problems Wheatcroft so ably analyzes, this reviewer is not as happy with his program as with his economic analysis. One of the primary reasons why European air transport costs are high is the common international practice of limiting frequency of flights between key centers. This practice seems to be based upon the idea that the transportation market is a piece of pie to be cut up and distributed. It overlooks the fact, which the American airlines have found, that increased frequency of operation reduces costs which in turn makes possible lower rates, and this, in turn, along with the convenience of high frequency, makes for higher traffic densities. One cannot help but be disappointed that an exceptionally able economic analysis comes, to some extent, to the conclusion that increased regulation is a better medicine than increased freedom.

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International Civil Aviation Organization. By JACOB SCHENKMAN. (Geneva: E. Droz. 1955. Pp. viii, 410. 40 sw. fr.)

The student of air transportation, international economic organization, or political science will find Captain Schenkman's study of the International Civil Aviation Organization a scholarly piece of research, rich in information on this interesting experiment in international governmental cooperation, and thorough in its treatment. Undertaken under the auspices of the Graduate Institute of International Studies in Geneva, the study is primarily historical in nature, although the author does deal in detail with the anatomy and physiology of this aviation agency of the United Nations Organization. While the emphasis of the research is primarily on the history and nature of ICAO, some attention is given to technical and economic problems of international cooperation in aviation. At the same time the book would have been more valuable had the author utilized his vast research to make more analyses of

the problems involved and draw sharper conclusions of use to those studying international cooperation and internation aviation.

Of the three parts, the first is a political history of international civil aviation, with particular reference to the international conferences, commissions, and other agencies which treated civil aviation prior to the establishment of ICAO shortly after the end of the second world war. The author skillfully brings together the many diplomatic experiments designed to effectuate international cooperation in the air and provides an excellent summary of the Chicago Conference on International Civil Aviation in 1944.

The second part of the book deals with the evolution, nature, structure, and functions of the International Civil Aviation Organization. This agency, which came into permanent being in 1947, is a kind of United Nations for civil aviation and has had an extraordinarily important role in developing rules and mechanisms for assuring safe and effective international civil aviation. While its influence has been felt primarily in the areas of safety, operating practices, and air navigation services, it has had some impact on air transport economics, but this has been primarily through the provision of international machinery for effective and safe air operations.

The third part of the book describes and, to some extent, analyzes the work of ICAO in the technical, economic, and legal fields. Schenkman has succeeded well in summarizing a large volume of conference and committee reports and the many studies made of the operations of this international government agency.

Since Schenkman's book is designed to be a political analysis of international cooperation in aviation as this has been brought to fruition through the establishment and operation of ICAO, it should, perhaps, not be critized because of the lack of economic analysis of its operations. The book does represent the distillation of many reports, official documents and publications, and studies previously made concerning ICAO; and since it is well documented and has a complete bibliography of sources from over the world, it should prove a valuable reference work to those interested in the international aspects of aviation, as well as those interested in finding patterns and lessons for international cooperation in other fields.

HAROLD KOONTZ

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Furniture Marketing—Product, Price and Promotional Policies of Manufacturers. By KENNETH R. DAVIS. (Chapel Hill: School of Business Administration, University of North Carolina. 1957. Pp. xvi, 224. $5.00.)

"The objective of this book has been to describe and appraise marketing management among household furniture manufacturers" (p. 195). The topic is, however, examined in its economic setting, and economic theory is freely employed. At the risk of some unfairness to the author I shall review the book in terms of its general interest to economists.

Furniture is an important durable consumer good, equaling appliances and outstripping radio and television sets combined in the postwar period. Except for a Federal Trade Commission proceeding in 1923, there has been no govern-

mental prosecution or special investigation of the industry. Studies of such industries are both more important, as antidotes to bias among economists, and more difficult, because of paucity of data on competitive relationships. Since his sources are general governmental publications, trade journals, interviews with insiders, and some personal experience, Davis must rely on economic theory to fill in gaps in the data. The choice of a perfectly competitive model is, for this reason, the more in need of critical scrutiny.

The multitude of firms, low concentration, absence of high geographical barriers, and ease of entry are consistent with perfect competition, but also with monopolistic competition. Product differentiation is, thus, the key issue.

Even when narrowed to wood and upholstered, household furniture is a broad product classification that encompasses numerous differences in kinds and quality, is subdivided into three major style-groups (traditional, modern, and commercial), and undergoes annual style changes of varying degree within each group. Davis correctly avoids equating differences with differentiation, but there is evidence of genuine differentiation, particularly at higher quality levels; *e.g.*, a *Fortune* article is quoted which states that some firms "make a distinctive line that certain stores insist on having" (p. 156). Also, differentiation appears to be increasing. At lower levels, differentiation is weakened by lack of brand consciousness among consumers (many retailers remove labels), but these ranges also contain some of the best-known firms and largest advertisers. Since quotations from furniture manufacturers suggest pockets of oligopoly determined by geography and quality differentials, different segments of the industry may well fit any industrial classification short of sharply differentiated oligopoly.

Davis does not explicitly recognize any industrial classification between perfect competition and monopoly. Oligopoly is nowhere mentioned and monopolistic and imperfect competition only incidentally in quotations from Chamberlin and Robinson. The criteria for classification are extreme; whether product differentiation and independence in pricing are so great that firms can "disregard the actions of competitors" (pp. 58, 136). The conclusion that the industry is "somewhat like . . . the economists' model of perfect competition" is, therefore, essentially a rejection of monopoly.

After this classification, Davis proceeds to his major task of the analysis of marketing policies, during which he inferentially traverses the range between industrial extremes. For product, price, and promotional policies the rationale is first developed, essentially for strong oligopoly. By contrast furniture manufacturers are shown to have limited freedom in formulating policies, a typical conclusion being: "Few firms hope to make substantial gains through exploitation of price elasticity" (p. 145). Davis never does review all the evidence and state how close an approximation he believes perfect competition to be. Viewed broadly, the industry looks to me like a classic case of monopolistic competition.

The analysis of specific marketing policies and their economic implications is often very astute, but the over-all treatment suffers from the unresolved dilemma that marketing policies are in strict logic inconsistent with perfect competition. In order to discuss marketing, the model must be obscured by

vague qualifications, and strict logical inferences must be ignored. Elsewhere Davis gives the impression of generally seeking to minimize deviations from perfect competition rather than subjecting them to discriminating scrutiny. Sloping demand curves are implied but never explicitly acknowledged and analyzed; implications of strategic interdependence in quotations are overlooked; no attempt is made to distinguish subgroups of different competitive shading. A broader theoretical perspective would have added clarity and consistency, and it might well have modified both the choice of data and the conclusions.

Despite this shortcoming, Davis has done a competent job of bringing the industry into focus and contributing much-needed knowledge of the small-scale industry. The book is short, interesting, generally well written and organized, and suitable for supplementary reading in undergraduate courses in industrial organization.

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Public Control of Business, An International Approach. By PHILIP C. NEWMAN. (New York: Frederick A. Praeger. 1956. Pp. iv, 500. $14.00.)

The provision of case materials for courses in industrial organization and regulation poses problems that can never be completely solved. For one thing, the field is too broad for any but a small part of it to be covered by detailed study of individual situations. Some casebooks are therefore confined fairly rigidly to a single major field, like antitrust or public utilities; others range more widely. Related to the problem of scope is that of intensity; the choice of a casebook involves a nice balancing of breadth and depth, and of both with expense. The standard legal texts—Oppenheim, Schwartz, Handler, Bowie—are encylopedic and expensive. On the other hand, Stelzer's *Selected Antitrust Cases,* which is probably the best available compromise for undergraduate textbook purposes, is confined to the antitrust field, and to sometimes rather skimpily excerpted judicial opinions. Finally, there is the problem of finding the appropriate balance between legal documents and economic materials, both of which are surely essential. Here again most casebooks tend to be of one type or another—collections of industry studies like Adams' *The Structure of American Industry,* or of court decisions, like Stelzer on the one hand or Oppenheim on the other.

In almost all these respects, Newman's book defies classification. The uniqueness of its scope and content constitutes at once a drawback and a virtue. It is obviously too expensive to use as a supplementary undergraduate text, but it is not an adequate substitute for collections like Oppenheim; on the other hand it contains materials that have not been collected elsewhere, and that many teachers will want to make available to their students, both graduate and undergraduate.

The materials fall into six categories: private international cartels; intergovernmental commodity agreements; legislation of various countries; judicial opinions; enforcement techniques; and international proposals to deal with the monopoly problem. This paraphrased table of contents suggests the major

respects in which the compilation is more or less unique: its approach is comparative and international; and it combines a wide range of original source material with the more familiar judicial opinions.

To illustrate these overlapping attributes: The approximately one-third of the book treating of international cartels consists mainly of the texts of such agreements—between du Pont and Imperial Chemical Industries, General Electric and Krupp, Standard of New Jersey and I. G. Farben; of the steel, rail makers, potash, sulphur, copper, and air transport association cartels; of intergovernmental agreements in wheat, tin, tea and rubber; and fascinating first-hand accounts of the organization and operation of the Canadian newsprint industry and of the "as-is" agreement between the major international petroleum companies. Another 135 pages contain the major statutes governing cartels and monopolies of eight leading countries (though unaccountably omitting the 1950 amendment to Section 7 of the Clayton Act). The final section of the book includes the text of the famous Dusseldorf Agreement of 1939, the treaties constituting the European Coal and Steel Community, and the relevant chapters of the lamented Havana Charter—though one would have preferred to see here the Draft Articles of Agreement more recently proposed by the United Nations Ad Hoc Committee. The section on enforcement contains the texts of a few antitrust consent decrees, Federal Trade Commission reports describing some of its work, and the very interesting conclusion and discussion of remedies from the report of the British Monopolies and Restrictive Practices Commission on the British Match Corporation.

As with any other casebook, the price of including much that is novel is a skimping along other lines. The material on judicial interpretation and enforcement is almost exclusively American. There is no adequate sampling of the rich and extremely interesting Reports of the British Monopolies Commission—most of them strikingly illustrating the problems of reconciling the fears of wasteful and destructive competition, so typical of the 1920's and '30's, with the more general commitment to competition of the 1950's—or of the Canadian Commission set up under the Combines Investigation Act. As for the American antitrust decisions, while the selection is for the most part judicious, the excerpts satisfyingly complete, and the brief explanatory introductions (here as elsewhere in the book) helpful, the cases included are necessarily few in number: the latest decision dealing substantively with price-fixing is *Appalachian Coals;* and there are no cases under Robinson-Patman or Sections 3 or 7 of the Clayton Act, or involving open-price associations, basing points, patent agreements, or international cartels. In the field of public utility regulation we are offered only brief extracts from *Munn v. Illinois* and *Hope Natural Gas;* in the field of labor, only *Hutcheson.*

Finally, there is some real question in my mind about the teachability of much of the material incorporated. About 60 per cent of the book consists essentially of the texts of various international agreements, and of antimonopoly legislation. Except for the very welcome and interesting Civil Aeronautics Board decision of 1946 that follows the text of the International Air Transport Association agreement, these excerpts are not accompanied by evaluative case material. It is difficult for me to see how one could put students

through these dry texts without giving them the stimulus and help of additional case material in each instance—for example, extracts from the du Pont-I.C.I. decision (and possibly some of the defenses of the agreements offered by the defendants). Perhaps these questions will be answered by the treatise that Professor Newman has been preparing, to which the present volume was originally intended to serve as appendix.

Most teachers, I judge, will not find it possible to adopt Newman. But I think they will want to have copies within reach of their students; as a source book, pulling together documents that are not readily available elsewhere, it represents a genuine contribution.

ALFRED E. KAHN

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Studies of Overseas Supply. By H. DUNCAN HALL and C. C. WRIGLEY. History of the Second World War, U. K. Civil Series. (London: H.M.S.O. and Longmans, Green. 1956. New York: British Information Services, distributer. Pp. xi, 537. 37*s* 6*d*; $6.98.)

Great Britain's recent revolutionary shift to nuclear weapons, long-range missles, and air power as the primary means of defense in any future world conflict seems to make any study of Britain's global economic strategy in the second world war obsolete as a guide to future action. But the value of this book as a stimulant to policy-making is not destroyed by Lord Macmillan's innovations in the spring of 1957. Those interested in the history of the British economy's trans-Atlantic and Pacific supply sources during 1939-45 will be rewarded. Here is crisp, competent writing on various important problems that were outside the organizational framework or could not be adequately explored in *North American Supply,* Duncan Hall's earlier study of the main factors determining the great flow of war material from the United States and Canada to the United Kingdom and its bases overseas. The scope of the current volume is wider than its predecessor, since its chapters include treatments of the Combined Boards, the British supply organization overseas, Anglo-American scientific collaboration, and the munitions supply from the Eastern hemisphere.

The first four chapters analyze the major problems and developments of munitions supply from the United States and Canada. Their author, Mr. Wrigley, ranges from a survey of British needs and North American supplies of different kinds and quantities of munitions to a candid critique of the problems of cash purchase, lend-lease procurement, allocations, and forward-planning. He stresses, rightly in my opinion, the historical importance of British orders for American machine tools, aircraft, and tankers, and of British capital investment in American munitions plants as together constituting the largest single factor in the tremendous increase of American munitions output before Pearl Harbor. To him the transition from cash-purchases to lend-lease would have been necessary even if British dollar resources had not been exhausted (p. 112). The practical difficulties of negotiating contracts and of winning the consent of the United States government at every step in the supply-process were so enormous as to make some Anglo-American govern-

mental enterprise like lend-lease appear an inevitability. Although I cannot assent to this in all its details, I agree that lend-lease was certainly desirable from the viewpoint of conserving limited British financial resources and of expediting the Anglo-American war effort.

The comments by Wrigley and wartime British officials on certain American governmental practices and positions add spice to this narrative. Arthur B. Purvis, that great pioneer in Anglo-American munitions production and procurement, wrote across a "Note for Henry Morgenthau" on the inferiority of American aircraft to British in 1940: "This is dynamite . . . not given to H.M." (p. 93). Wrigley points out the dislike of British officials for the American officials' rigid, elaborate statistical planning of lend-lease munitions supply. "British administrators regarded the planning of war supply as an art rather than an exact science." They had little faith in the precision of forecasts of requirements or production and considered it folly to allow no deviations from a program based upon these forecasts. To them some of the American requests for detailed data on British requirements seemed examples of "planning run mad" (p. 203).

Most of the second half of this volume deals with the creation, powers, and problems of the Combined Boards (especially those concerned with raw materials, munitions assignments, and production and resources), and of the British War Organization in North America. Mr. Hall explains their varied functions and fortunes with considerable clarity and skill. One of his three packed chapters is devoted to the Combined Raw Materials Board in order to illustrate the processes which created the Combined Board system. He succeeds in his objective, but fails to give full credit to the achievements of the Combined Production and Resources Board. Nor does he portray adequately the role of Canada in the Combined Boards. On the other hand, Hall rewards his readers by many astute observations; *e.g.*, on the difference between the teamwork of British officials and the disunity of competing American agencies (pp. 237-38), and on the rough and ready principles for allocating resources utilized by the C.R.M.B. (pp. 272-73).

The last two chapters by J. D. Scott and C. C. Wrigley respectively, are devoted to Anglo-American scientific collaboration and war supplies from the Eastern Hemisphere. Scott, co-author of a companion volume, *The Administration of War Production*, reveals that the principle of complete scientific interchange was established at least a year before Pearl Harbor. He also describes lucidly and judiciously three major "fruits of collaboration" in the development of radar, the jet engine, and the atomic bomb. The chapter by Wrigley brings out the important contributions of Australia, New Zealand, South Africa, India and the British dependencies in the Eastern Hemisphere at certain critical places and periods during the war. Statistically their munitions contribution was only 1.6 per cent of the total war supply of the British Commonwealth forces. But strategically, in terms of specific place and time utility, the Eastern Hemisphere's supply was of vital importance in British Commonwealth and Empire defense, particularly before 1942.

This volume will satisfy most economic historians, but one regrets the failure of the co-authors to engage in the kind of theoretical and statistical

analysis of war problems to be found in A. J. Brown, *Applied Economics* (1948), D. N. Chester, ed., *Lessons of the British War Economy* (1951), or Lionel Robbins, *The Economic Problem in War and Peace* (1947). Thoughtful readers will discover much that will repay them for going through these studies in British wartime economic history.

SIDNEY RATNER

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Land Economics; Agricultural Economics; Economic Geography; Housing

The New Revolution in the Cotton Economy. By JAMES H. STREET. (Chapel Hill: University of North Carolina Press. 1957. Pp. xvi, 294. $5.00.)

Why was mechanization so late in cotton growing, how and why did it eventually take hold, and what are likely to be its social results? In pursuing his inquiry into these questions, the author has regarded the subject both broadly and intensively, and makes use of many researches by others into numerous aspects and periods of the cotton economy.

Part I deals with the historical and cultural setting of the problem, tracing it in bold strokes from the earliest days through the second world war. Part II analyzes the technical aspects of the subject. It describes the special nature of the agricultural obstacles to mechanization in cotton picking, the long series of attempts to develop a practical cotton harvester, and the regional differences which affect its performance. Part III discusses the population movements incident to recent national economic growth, the question whether the cotton growers did, or do, face a labor shortage, and the probable effects of mechanization on such matters as farm size and labor. The book includes a valuable bibliography and an index.

The author is particularly successful in weaving together the numerous influences which affected the introduction of more efficient technology in a sector in which the stimuli either to resist or to accept change were far from simple. The cotton economy of the Southeast, established during the early technological revolution initiated by the invention of the cotton gin and of cotton weaving and spinning machinery, became for more than a century, unlike most of the national economy, particularly resistant to innovation and the cultural changes that usually accompany it. Yet by 1955 almost one-fourth of the American crop was mechanically harvested, and in California, the leading state, two-thirds of the crop was picked by machine. This new cotton revolution, the author believes, cannot be halted.

Between the early backwardness and the eventual victory of machinery lie such varied circumstances as the slave economy—slaves being at once a major investment and a reservoir of controlled labor—the attitude that went with this situation, the credit system, especially after the introduction of tenancy and sharecropping, changes in the market for the product, the effects of soils, climate and labor supply in the more recently developed regions suitable for cotton, the difficulty of designing effective harvesting machinery, the lack of stimulus for mechanizing any part of cotton growing unless virtually all the

processes could be mechanized, and the concurrence of new achievements in plant breeding, weed control, plant defoliation, and ginning—all necessary accompaniments for efficient mechanical harvesting.

Mechanization, the author believes, since it is not the result of a labor shortage, will push agricultural workers out of cotton growing. It will not raise the income per head from cotton relative to other incomes, but will increase it absolutely. It has already diminished the demand for child labor and thus has enhanced educational opportunity. All social gains to be expected will depend on a high level of employment in the rest of the economy. Mechanization will favor large farms and render untenable small acreages on marginal lands—unless price supports, not needed by the more efficient, encourage the small growers to continue the struggle for existence in a basically inefficient operation. These conclusions are persuasive.

As a whole, the study seems to rest on thorough research; it is well organized and well reasoned. As a careful examination of a particularly striking case, it should help in the endeavor to round out a theory of economic growth. While resisting the temptation to oversimplify an immensely complex process, the author does not hesitate to express his opinions.

One minor point, largely irrelevant to the main body of the argument, may be questioned. Is it true (p. 7) that the labor scarcity resulting from the invention of the cotton gin in 1793 "was met by the greatly increased importation of African slave labor"? Surely this was not the case for long, since the smuggling of slaves after the foreign slave trade was legally forbidden in 1808 did not provide more than a small fraction of those obtained by domestic breeding.

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Localisations et rythmes de l'activité agricole. By Gilbert Rullière. (Paris: A. Colin. 1956. Pp. x, 348. 1.300 fr.)

This work emphasizes the relationship of man to the land conceived as a complex of interrelated forces which reveal tendencies both to stability and to change. The analysis is broadly segregated into spatial and temporal aspects. The spatial analysis is based on the work of Von Thünen as elaborated by Brinkmann and Lösch. This schema is, however, too simple as a basic tool for handling the factors determining the location and the utilization of factors of production in the agricultural structure. It is based largely on the single factor of transport costs and certain simplifying assumptions which do not permit an adequate establishment of the functional relationship between distance and other factors. Accordingly the function "revenue—net-distance" is developed on the basis of Lösch's functional relationships as an improvement in the analytical model. Even so it is not possible to deduce more than a simple schema because too many factors are operating.

Introduction of temporal factors brings new complications with respect to both the demand and the supply of agricultural products, in the form of development, instability and the forces working in national systems of agriculture. Adjustment to the changing scene requires a degree of flexibility amongst

the factors of production working within the agricultural structure if undue reductions in revenue accruing to agriculture, government interference and overcrowding and malexploitation of the inherent resources in the land are to be avoided.

Throughout the work M. Rullière repeatedly warns that the complexity of agricultural problems is often unsuspected and that the influence of a large number of underlying factors is delimited with difficulty. At the same time he demonstrates that the basic tools of economic analysis are capable of dealing with the subject-matter, given adequate data, the proper approach and a not too great insistence upon rigorous or formal conclusions. The book goes a long way towards a cataloging of the relevant factors which must be taken into consideration in such a study.

The work is developed largely at the theoretical level with frequent reference to experience. Part III dealing with the national scene is largely devoted to illustrative material from the economic history of the United Kingdom, the United States, Bulgaria, Brazil and Denmark. It is unfortunate that more of this type of material was not incorporated into the work. There is a great need for a general study of the international distribution of resources in agriculture and the necessary adjustments which have taken place in relation to world markets since the first world war, not only as a result of economic factors, such as the trade cycle and technological change, but also as a result of the two world wars which have profoundly affected agriculture. It is hoped that in the future Rullière will be able to apply his analysis to this important field.

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American Housing and Its Use. By LOUIS WINNICK. A Census-Social Science Research Council Monograph. (New York: John Wiley. London: Chapman & Hall. 1957. Pp. xiv, 143. $5.50.)

This volume is one in the Census Monograph Series. In the foreword, the director of the Census and the president of the Social Science Research Council state that the purpose of these volumes is to analyze and discuss the social and economic relationships and trends discernible among the voluminous census data. They are to include broad explorations of new questions suggested by new information and are also to narrow the elements of doubt and controversy on old questions. Winnick has succeeded in meeting these objectives admirably. He has contributed several important new concepts to the field of housing analysis. At the same time, he has tested and strengthened prior theories, has shown how the theories have worked in actuality, and in some cases, has corrected commonly held errors which arose from failure to examine the proper data.

This volume demonstrates that housing analysis has been weakened by a failure to consider adequately the amount of space in terms of rooms (or perhaps size and quality of rooms) that families desire and use. It is not sufficient, as has too often been done, to analyze space merely in terms of occupied or vacant dwelling units. For as market demand for rooms alters, a given amount of space may be split up or recombined into widely varying numbers of dwelling

units. The disparity between these two types of space-demand helps to explain the low level of residential construction in the 1930's, the unusually high level of construction demand in the decade after the second world war, and perhaps the recent weakness in this market.

The largest part of this volume consists of an analysis of the variables influencing this use of space, the changes over time in these variables, and the resulting utilization of the housing stock. Winnick has used his data with ingenuity and has presented the results with clarity and admirable readability.

The major variables affecting demand for rooms appear to be: family size; income; costs; race; and geographical location. Family size is the most important. Larger families demand more rooms, but their demand does not increase as rapidly as the family. As a result the larger a family, the less space available per member. There appears to have been a 15 to 20 per cent fall in the ratio of persons per room since 1900. This plus other data convince the author that housing space standards have improved at a far slower rate than most other items in our national standard of consumption. Discovering the reasons for this lag is important for future forecasts and policy determination. Even so, the United States standards are far above those of other countries, and there is far less deviation around the average standard than is true for most other goods.

In addition to its very positive analytical contributions, this work may play a still more significant role if it leads the Census to re-examine the present inadequate methods of making data available for research purposes. The author is forced to apoligize on the average of every five or six pages because the census data cannot really be used to test adequately the theories presented. In his words, "an attack on the problem via census data can be made only with the aid of bold assumptions and catch-as-catch-can technique" (p. 42). As he points out, a family's utilization of space is the result of many independent and interdependent causes. The Census, however, only publishes data concerning highly aggregated groups of families. Rarely can the effect of more than one or two economic variables be analyzed from ceusus data. Only through unusual skill, insight, and imagination is Winnick able to obtain his results. He accomplishes this by drawing upon a wide variety of diverse (frequently noncensus) and basically insufficient data.

SHERMAN J. MAISEL

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Mecanización de la Agricultura Méxicana. By LUIS YAÑEZ-PEREZ. (Mexico, D. F.: Instituto Mexicano de Investigaciones Económicas. 1957. Pp. xvii, 419. P30.00; $3.00.)

This is the first study issued by the Instituto Mexicano de Investigaciones Económicas, an organization set up by, but apparently independent of, the Banco de Mexico, the Nacional Financiera, and the Banco Nacional de Comercio Exterior. Its purpose is to determine to what degree Mexican agriculture should be mechanized in relation to the growing rural population of the country. The point of view is that of economists concerned with developing the basis of national policy. The result is a very broad study of certain

aspects of agriculture in Mexico (while by-passing such sticky questions as the future of the *ejido*).

The opening chapters survey the characteristics of the Mexican population and its rate of increase (using previously published data), the distribution of land by size of holding and type of tenure (*ejidal* and private), and man-hour labor inputs per hectare. Figures are given on a national basis, by regions, and by states for the eighteen principal agricultural products produced in the country accounting for about 95 per cent of all cultivated land.

Output per hectare and per man-hour is given for each of the crops studied. Productivity is defined in physical terms, but fortunately, also given in value terms since comparisons are drawn between different crops. This data is of considerable interest both for those concerned with the specific case of Mexico and as a picture of agricultural productivity variations in similar underdeveloped areas. Value of output per man-hour, for example, was less than .8 pesos in the important bean crop and 5.2 pesos in export crops such as cotton and oranges.

A comparison of the difference between average yields per hectare and productivity per man-hour on one hand, and yields and productivity achieved on the most mechanized holdings gives a figure for the increase in output possible from mechanization. Add to this estimates of the total area "mechanizable," assumptions as to the area an average tractor can work and its labor requirements, and finally projections as to the rate of population growth in agriculture, and one can (and the study does) derive answers to a series of important questions, *e.g.*, the potential output gains from mechanization, total labor requirements and the possibility of absorbing the growing labor force, the number of machines required and the cost of mechanization.

Nothing is more startling to the cautious academic economist in the United States than the willingness of writers in the underdeveloped areas to launch proposals for large-scale economic and social changes on the basis of admittedly uncertain data and broad assumptions as to the behavior of crucial variables. The pressures of poverty are, however, compelling and make necessary decisions today rather than tomorrow, when presumably the statistics will be better and the economics of progress understood.

On the basis of their data, the authors advance with many qualifications a proposal for mechanizing Mexican agriculture. They propose a 24-year program of equipping it with tractors, and the complementary equipment such as drills, harrows, and plows. They also propose an increase in the area under cultivation by bringing into use cultivable areas not presently in use (there is considerable vagueness as to what, in economic terms, "cultivable" means). They propose to decrease the cultivated land left out of production each year, *e.g.*, fallow, from 50 per cent of total cultivated land today to 19 per cent of the increased total cultivated land. The total area cultivated each year will thus be increased from 19 million hectares to about 27 million hectares. At the end of the 24 years most (about 80 per cent) of the land would be worked with tractors and complementary equipment. The increase in the agricultural population would be absorbed, the average size of holding would be increased (but the balance between *ejido* and private holding is left undisturbed) and

there would be a substantial migration from the overcrowded central plateau to the north and southeast sections.

One might approve the program on the grounds that, (1) though the underlying data are highly unsatisfactory and the projections subject to enormous range of error, the need as Mosk has pointed out, is, to develop agriculture if industrialization is to proceed at recent rates, and (2) that the absolute magnitude of goals can be adjusted over the course of 24 years as more experience is gained. The suggested program could be taken as a maximum effort. The cost calculations are another thing, however. The total cost of the program is obtained by multiplying average cost per unit of equipment today by the total 24-year increase in their numbers. The cost of the program for its initial year thus calculated would have been only 0.64 per cent of national product at factor cost in 1956 and a decreasing fraction thereafter. No estimates are made of the investment costs of producing tractors, or of the foreign-exchange problems if the tractors are imported, or the costs of relocation, or training of labor. Some of these problems are recognized by the authors, but one gets the feeling that they do not consider them crucial. The least one can say is that some further studies are indicated before it is legitimate to start calculating the cost as a per cent of national product. Then it may be time to discuss the project in terms of alternative uses of investment allocation.

ROBERT R. EDMINSTER

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Labor Economics

The A.F. of L. in the Time of Gompers. By PHILIP TAFT. (New York: Harper & Brothers. 1957. Pp. xx, 508. $6.75.)

The appearance of the first volume of Professor Taft's new history of the American Federation of Labor is a notable event. In making this study, the author has had the cooperation of the Executive Council and senior officers of the A.F. of L. and he has had access to a vast collection of published and unpublished material. The result is a massive, richly documented work of scholarship which will long remain a standard source of reference.

Inevitably, comparison will be made with Lewis L. Lorwin's earlier history of the A.F. of L. and with Samuel Gompers' *Seventy Years of Life and Labor.* Taft's account of the A.F. of L. under Gompers is more detailed and more methodical than that given in these earlier works, but it does not evoke the interest of the reader in the same memorable fashion. In failing to bring his subject to life, the author leaves the reader without a rounded picture of Gompers as a man, and without any clear conception of the A.F. of L. as an institution. Just why was the Federation successful? What made it "tick"? To what extent did the A.F. of L. really influence the pattern of social evolution in the United States? Was it merely, or mainly, the dynamic energy, self-confidence and shrewd bluff of its determined, rather pompous little president that made the A.F. of L. a great national institution? Taft provides no direct answer to questions such as these. This may be due to his method of exposition, which is to examine each major facet of the Federation's activities

separately, or it may be that the author is leaving a full critical assessment of the Federation to a later volume.

The manner of the A.F. of L.'s coming into existence has been told in many books, most notably by Samuel Gompers himself, in his fascinating autobiography. Taft does not devote much space to the forerunners, but he does indicate that the conception upon which the Federation was founded marks if off from any previously established national labor organization. The principal reason for the creation of the A.F. of L. was to support the self-defense of the separate unions, in the first place against the dangerously irresponsible activities of the Knights of Labor and, in the second place, against the employers and allies in federal and state governments. Sweeping ideological objectives were eschewed in favor of a pragmatic program of rapidly achievable goals. The fundamental tenet of the A.F. of L.'s organizational structure was the autonomy of the constituent unions. In both these features, the A.F. of L. differed sharply from its contemporary rival, the Knights of Labor, and from earlier attempts to create a powerful, nation-wide labor organization.

The British Trades Union Congress, founded eighteen years before the A.F. of L. finally emerged in 1886 as a fully fledged organization, was, as Taft shows, cited as the example which American unions ought to follow. Though Taft does not compare the two organizations, it is of interest to make this comparison, since it deepens the perspective from which the development of the A.F. of L. might be viewed. Like the A.F. of L., the Trades Union Congress also differed quite significantly from its several predecessors. It was, however, in contradistinction to the A.F. of L., established to achieve objectives that were primarily political. The immediate cause of the holding of the first T.U.C. meeting was a rather trivial insult to the trade unions from the middle-class Social Science Association. But the unions were also faced with the need to win from a hostile Parliament a statute which would free them from dangerous decisions in the courts by Her Majesty's judges. Previous attempts to set up a nation-wide organization had foundered because they either sought utopian goals, or attempted to supersede the individual unions by the creation of one big organization. The T.U.C. left domestic trade union problems severely alone and concentrated on lobbying Parliament for legislation that would favor labor interests.

Though the objectives of the British T.U.C. were mainly political, its energies were, until 1890, chiefly confined to securing changes in the law that would remove discrimination against wage earners. Attempts to persuade the T.U.C. to adopt, for example, a policy in favor of the legal regulation of hours of work were bitterly resisted. The decisive change in the attitude of the unions toward state intervention to protect workpeople came with the organization of the unskilled workers in the 1890's. Since the A.F. of L. was still primarily an organization of craft unions at the time of his death, it is perhaps not surprising that Samuel Gompers remained throughout his life a strong opponent of social security provided by legal regulation.

Perhaps the most important function of the A.F. of L. was to assist the member unions to build up their organizations and to help them resolve their jurisdictional conflicts. The British T.U.C. fought shy of such responsibilities

for many years; when it ultimately established machinery to settle inter-union conflicts it never sought to impose, as did the A. F. of L., a policy of exclusive jurisdiction. Nor did the T.U.C., until it adopted a new constitution in 1921, make any serious attempt to define its powers in relation to its affiliated unions.

Taft might have pointed out that British trade unionists reversed the compliment which the Americans had paid to the T.U.C., when a section of them, dissatisfied with the role which the T.U.C. had for long played, cited the A.F. of L. as the example which henceforth ought to be followed. The critics of the T.U.C. and of its Parliamentary Committee at this time sought two objectives: (1) to bring into existence a political party based on the trade unions; (2) to create a Federation of Trade Unions that would assist the unions to organize to fight the employers, especially by the aid of a central strike fund, and to direct the strategy and tactics of the whole trade union movement. Both objectives were achieved at the turn of the century, but the General Federation of Trade Unions, which its founders thought they were modeling on the A.F. of L., failed to supersede the T.U.C. It also failed to persuade the unions to abrogate their autonomy and, in practice, it only survived by the acceptance of the principle upon which the A.F. of L. had been founded.

By a curious stroke of fortune, the General Federation of Trade Unions became the representative British body in the international trade union field, from its foundation until the end of the first world war, when it was ousted by the T.U.C. Though the A.F. of L. exchanged fraternal delegates only with the T.U.C., it had contact with the G.F.T.U. through its international activities. It is clear, however, that Gompers and his Executive Council were never properly aware of the relative significance of the two organizations in relation to the British labor movement; this was to be partly the cause of the A.F. of L. becoming intimately involved in the bitter quarrel between the T.U.C. and the G.F.T.U.

During the first world war, the A.F. of L., until 1917, maintained relations with both the British and the German trade union movements, and it proposed that a conference of labor organizations should be held at the same time and in the same city as the peace conference at the end of the war. This proposal was rejected in 1916 by both the T.U.C. and the G.F.T.U., who were, at this stage, not prepared to consider meeting the German trade union leaders. This was the last time, however, that the T.U.C. and the G.F.T.U. were to be in harmony on international affairs. The T.U.C. and the G.F.T.U. were already in conflict over domestic issues, and when the Parliamentary Committee decided to support the Labour Party's declaration of war aims, the rift widened. The G.F.T.U. sought the support of the A.F. of L., which, under Gompers' direction had, with the entry of the United States into the war, adopted an uncompromising anti-German attitude. Britain had already been in the war two and a half years, and the appalling casualties had left the great majority of trade unionists in no mood to listen to jingoes. It seemed offensive to many of the T.U.C. leaders that the A.F. of L. should dare to question their patriotism and will to win the war because they had supported President Wilson's fourteen points. Nothing could have been more ironic than the spectacle of British labor adopting Wilson as their hero, while at

the same time the American labor movement was giving support to the anti-Wilson policies of Lloyd George.

The British Prime Minister and the minority of die-hard labor men who supported his "fight to a finish" policy, had skilfully used the A.F. of L. to bolster their views, and they flattered Gompers into making a personal trip to Britain in 1918 in the hope that he would discredit Henderson. Though Gompers, as his autobiography reveals, completely failed to understand the developments that were taking place in the attitudes of the British trade unions, he was brought to realize by events before he left Britain that the G.F.T.U. represented only a tiny minority of trade union opinion. However, although—in his autobiography—the leader of the A.F. of L. gives the impression that his tour was a triumph of powerful labor statesmanship, it was, from the point-of-view of changing the policy of the T.U.C., a complete failure.

It is a pity that Taft has not explored the international activities of the A.F. of L. much more deeply, since the attitudes and policies which emerged in this period have persisted to the present day. To the British trade unionist, the approach of the Americans to international problems often appears crude and unsubtle, and the way in which they present their views often dogmatic, boastful and bullying. On the other side, the A.F. of L. have often felt with Gompers that the British were always ready to secure an advantage by the unscrupulous sacrifice of principle for expediency. Perhaps the remarkable thing is that the two organizations have maintained close and friendly relations without a real break for over sixty years, in spite of fundamental differences in tradition. Credit for laying the foundation of this cooperation must go to Gompers.

B. C. ROBERTS

The London School of Economics and Political Science

Die 40-Stunden-Woche. By HEINZ HALLER, GERHARD KROEBEL, and HANS SEISCHAB. Lebendige Wirtschaft. Vol. XVI. (Darmstadt: C. W. Leske. 1955. Pp. 275. DM 9, 80.)

A generation ago United States economists debated the merits of the 40-hour week. Today Europeans are discussing the same problem, while we are tackling the economic consequences of the 36- and even the 32-hour week.

The crux of the problem in the United States is likely to be the effect on prices and profits of the extra costs of time-and-a-half after 36 hours. Europeans, however, hope to offset higher wage costs per hour of work by increased productivity. Continental businessmen take a *quid pro quo* attitude and ask for some kind of return from the workers for their concessions or, less frequently, exert greater efforts themselves.

There is some real possibility of raising productivity in man-paced work when the work week is reduced from 48 to 40 hours. Below that point, however, it is unrealistic to expect general improvement. It might even be argued that output per man-hour is likely to fall, since the number of two-job workers, already sizeable, would increase, and some leisure-time activities are more fatiguing than work.

This, then, appears to be essentially the contrast between the European and the American attitude toward shorter hours of work: European businessmen still think they can offset the cost rise by getting the workers to work harder. American businessmen know that any offsetting increase in productivity is more likely to come through better methods and better machines. From the viewpoint of the workers themselves, it might be added that increased leisure is probably more important to the European than to the American.

This book contains the proceedings of two conferences held by the German Economic Society in a series of seminars in 1955, and is one of a series of volumes on "The Living Economy." The text is made up of the edited transcript of the papers and discussions of seminar participants, including representatives from industry, labor, government, the universities, and special institutes for research on this problem.

The point of view of the "Living Economy" series is stated as antitheoretical—"the cares and requirements of life are exposed." It is antidogmatic—"all points of view are discussed." It is pragmatic, recognizing the necessity for "adaptation to circumstances."

This volume is all these things, but like so many German publications it is prolix, detailed, repetitious, and couched in extravagant language. A number of the contributions remind one of the old American gag about doctorate theses: "Big words, small print, no sale."

Of the four principal papers, the one least deserving of this criticism and the most refreshing is that of Gottlieb Duttweiler, president of the very successful Migros Stores. He says frankly that the basic problem in Switzerland is not whether the work week will be reduced from 48 hours to 44, but only the timing of the reduction. If employers fight the reduction, he believes, they will probably lose, since technical progress is bound to lead to shorter hours.

H. Haller of Kiel University gives his blessing to the reduction with reservations. It would be a good thing, he says, to have a shorter work week provided "productivity" (not defined) rose proportionately. And he would have the change proceed for "small groups," with an agreement that constant total wage payments would be maintained only to the extent that productivity per hour increased. This, he holds, would provide a brake. If the work week is reduced without a corresponding increase in productivity, he says, the inevitable result will be higher prices, which might cause a serious economic situation, especially in view of Germany's defense commitments. At one point, however, he appears to concede that the difference might come out of profits.

Dealing with the applied-economic aspects of the 40-hour week H. Seischab of Hamburg University advocates continuation of the 48-hour week "as a historic necessity," at least until its beneficial effects can be passed on to everyone. Further, he states, the adverse effects would be the greater, the greater the rise in the rate of wages and reduction of hours, the more labor-intensive the products, the greater the required expansion of capacity and overtime.

While the two theoreticians seem to be overly pessimistic in the light of experience and narrow in their theoretical postulates, the labor-union expert,

Gerhard Kroebel, seems overoptimistic. He presents a long list of alleged advantages of the shorter work week and concludes with an appeal for more courage in experimenting. Among the numerous discussants the only extended experience presented is from the coal mining industry, which offers some contradictory data and opinions. Unfortunately nowhere is an attempt made to summarize and distill all the different points of view, and the result is a great miscellany of facts that are no more an operational framework of analysis than a collection of different-sized bricks is a house.

ERNEST DALE

Cornell University

Womanpower: A Statement by the National Manpower Council with Chapters by the Council Staff. (New York: Columbia University Press. 1957. Pp. xxxiii, 371. $5.00.)

This report is likely to have the widest audience of the Council's three studies of selected problem areas in manpower, partly because a wider variety of policy issues is necessarily involved and partly because there are differences of opinion on the interpretation of available information and on appropriate policies. The subject-matter therefore lends itself extremely well to the Council's technique of clarifying current issues in a problem through conferences and consultation, and of supplementing policy recommendations by analysis of historical trends and interpretation of the findings of recent studies. Viewed in historical perspective, the argument about women's work outside the home is, like work in the home, "never done." Perhaps one should add that, despite the argument, women appear to have accomplished what is called a "revolution" in gainful employment.

The outstanding features of the revolution are sketched in terms of increased labor-force participation, particularly by married and older women, and the interrelationships of these developments with changing patterns in such varied influences as the levels of family income, standards of living including education, or the age of marriage and child-rearing. While the ratio of workers to nonworkers in the population has not changed much since 1890 there has been a marked change in the composition of the two groups. Women have replaced men who have retired from or delayed entrance to the labor market, and married and older women have replaced and added to the supply of younger women. Since 1947, a period of high levels of employment and of intermittent labor shortages in some occupations, women have accounted for most of the growth of the nation's working population. There has also been an increase in the number of part-time jobs, particularly in the service industries where a variety of schedules that appeal to married women appear to be feasible.

About a third of all employed women hold full-time jobs and work throughout the year, another third work full-time but for only part of the year and the remainder hold part-time jobs for varying periods. Intermittency of work experience therefore characterizes a substantial majority of women workers over their life-span. Nevertheless, it is estimated that "today's school girls may spend 25 years or more in work outside the home."

The report discusses the effect of such influences on women's attitudes to work careers, their education and vocational guidance, and the hiring practices of employers. Alleged differences between men and women in labor turnover and absenteeism, in rates of pay and earnings, and in qualifications for promotion are considered. Despite the opening of a wide variety of occupations to women in recent decades, the report notes their concentration in traditional fields of employment and the persistence of conventional attitudes in the "sex-labeling" of many jobs.

There are chapters devoted to a consideration of women as workers in business and industry and in the armed forces and professional pursuits; and labor shortages of clerical workers, nurses, teachers, and social workers are also discussed at some length; in fact, almost all aspects of women's work outside the home are considered in an appropriate setting. The reader who desires to be brought up to date on a variety of issues, trends, and new developments will find this volume a useful compendium.

The Council indicates that many issues of both public and private policy are unresolved and that more research is needed on the problems posed by recent developments. It also recommends improvements in the training and counseling of the labor supply, changes in personnel practices looking toward more effective utilization of women, and greater flexibility in work schedules. Both the recommendations and the analysis are broad in scope, and the report should find a place on the desks of all personnel managers, guidance counselors, and labor economists. The technicians in labor-force analysis, who usually prefer more supporting data or are inclined to discount conclusions they cannot readily check, should read this report for the stimulus of the ideas it presents.

GLADYS L. PALMER

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Population; Welfare Programs; Standards of Living

Population Theory and Policy. Edited by JOSEPH J. SPENGLER and OTIS DUDLEY DUNCAN. (Glencoe, Ill.: The Free Press. Pp. x, 522. $7.50.)

To those of us who have attempted to give courses in population to students of economics, this book of readings, like its companion volume (*Demographic Analysis: Selected Readings*), is almost a godsend. The volume under review contains some 38 pieces, mostly by American economists and sociologists. The editors have provided short and useful introductions to various sections of the book, and a good classified bibliography. Although the level of the articles reprinted differ, most of them are suitable for seniors or first-year graduate students.

How should one review a book of readings? Are the selections optimal given the resources of the editors? Not knowing the resources constraints involved I cannot really judge. While many of the selections are excellent there are a few that are, at best, marginal.

The first two papers are reviews of doctrine. Of these, the one by A. B. Wolfe (1928), covering the decade beginning with 1918, though excellent in its

way, is somewhat dated. The other is an extract from a United Nations volume.[1] The anonymous UN authors apparently felt that they had to be all-inclusive, and yet reasonably terse. As a result some 29 pages of text are followed by some 20 tightly packed pages of citations and notes.

Three of the pieces are of a broad methodological nature. At least two, and perhaps all three, were presidential addresses at the Population Association of America meetings. While these somewhat exhortatory pieces are of interest as after-dinner speeches to fellow professionals, they are probably of marginal value to the beginning student.

Five of the papers, and they are very good ones for the purposes at hand, are by J. J. Spengler. This is almost inevitable since Spengler has written and contributed so much in this area. He probably bent over backwards not to include more of his own writings.

The pieces by economists fall into three groups: The first consists of articles of a broad nature that consider the general relations between economic and demographic variables. Kenneth Boulding's interesting piece, "Toward a General Theory of Growth," falls under this rubric. Also Alan Peacock's excellent exposition, in modern terminology, of the Malthusian model is in this category. The second group has to do with the relation between population and the business cycle, and the third deals with the connection between population growth and economic development.

There are two long sections, containing about seven contributions each, on "The Socio-Cultural Context of Population Dynamics," and on "Population Policy."

On the whole the pieces are balanced, often judicious, and exceedingly useful for the student. However, in one sense this collection is not especially well balanced. One misses in it the heat of the "population debate," and the spirit of controversy that so often surrounds discussion and writing in this area. Also, I believe that the value of this volume would have been increased had the editors found it possible to publish at least a few translations of the numerous contributions that have appeared in languages other than English.

HARVEY LEIBENSTEIN

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[1] *The Determinants and Consequences of Population Trends* (New York, 1953).

Economic and Social Security: Public and Private Measures Against Economic Insecurity. By JOHN G. TURNBULL, C. ARTHUR WILLIAMS, JR. AND EARL F. CHEIT. (New York: Ronald Press. 1957. Pp. vii, 539. $6.00.)

For the past few years the need for an adequate social security text has been growing. Eveline M. Burns' *The American Social Security System,* though still valuable as an exposition of basic social insurance principles, is out-of-date with respect to provisions of the system. Gagliardo's *American Social Insurance* lacked the qualities of an authoritative work. As a result, social security course instructors have had to lean heavily on official informational brochures and the general literature of the field. These are abundantly available and very useful but make for difficulties at the introductory level.

The instructional problem will be alleviated by the present book which has a number of excellent characteristics. It covers both public and private measures for meeting the problems of death, old age, unemployment, occupational and nonoccupational disability and sickness, as well as "substandard conditions"—all this compressed into only 527 pages. Each program is preceded by able presentations of the nature and extent of the particular security problem, which are, in a way, the best parts of the book. In each area, the authors prove themselves well informed on the important studies and leading developments. The footnotes offer excellent jumping-off-points for the enterprising student. The writing, despite the technical nature of the material, is clear and interesting.

Two serious criticisms, however, may be offered. First, the detailing of the various programs is generally too thin, and second, the book is rather too opinionated for an avowedly introductory text.

In regard to the first, the authors deliberately play down factual detail. They hold that "detailed presentation" does not serve "the purpose of a text whose aim is analysis and evaluation" (p. 193). They seem to have been concerned that their work would turn out to be "a statistical compendium of facts and figures on social security" (p. 4), and one that would become obsolete all too rapidly.

Surely a more solid factual base, short of such an extreme, should have been feasible. The most substantial problem confronting the social security instructor is that of imparting understanding of how the complicated social security systems operate. This is not especially aided by a text which suggests (p. 194) that he spend a week on his own state unemployment insurance law, and, for other state laws, refers him to the basic Bureau of Employment Security document on the subject. Social security instructors, no less than the authors, have discovered these expedients, and there is a question as to what contribution the text is making at this point.

One also wonders why no fewer than three chapters, amounting to a sixth of the volume, were expended on "substandard conditions," including labor supply and demand curves, child labor laws, Fair Labor Standards Act, hours regulation, etc. These topics are amply treated in the texts of labor problems courses, which are generally prerequisite to a social security elective. The authors' contention that "economic insecurity is inherent in substandard working conditions" (p. 7) does not justify such overlapping, especially at the expense of the traditional social security areas.

On the second criticism, the authors cap dearth of fact with excess of evaluation of a fairly special brand. Government, according to the authors, "serves its most useful function in providing a 'basic layer' of protection upon which private supplements can be built." They "prefer to see, within the governmental framework, a maximizing of the area in which private enterprise can operate" (p. 26).

This viewpoint is provocative and challenging, but overstressed in a textbook. The authors' approval of the governmental sector of social security sometimes appears almost conditioned on no further liberalization taking place. Thus, they question even the need for increasing the maximum weekly

unemployment benefit amount so that average benefit rates may keep up with average wage rates on a 50 per cent basis. They are, in this instance, not impressed with either the views of most social insurance students, or the widespread bipartisan acknowledgment of the need for the proposal. Their analysis of the problem as "fundamentally one in economic choice: scarce resources against unlimited wants" (p. 209) is too far-fetched a criterion to justify abandonment of a basic principle of unemployment insurance.

The authors are "bluntly uncertain about the desirability of social medical expense insurance," and favor "a wait-and-see attitude in this area" (p. 302). Yet the reader is not reassured by their own description of the confusing diversity of voluntary, private accidental injury and sickness plans. The authors themselves concede that this field is "so complicated that relatively few insureds understand it well enough to make intelligent decisions" (p. 362).

There is no question that the book has been carefully planned and skillfully put together. Yet this reviewer cannot help but wish that the authors had been a little less fearful of substantive fact and a little more fearful of embarking in an introductory text on evaluation of the whole congeries of private and public security programs. More concern for the pedagogical needs of the social security course, and less wrestling with the problem of the future of social security would have been in order.

HARRY MALISOFF

Brooklyn College

Consumer Economic Problems. By E. BRYANT PHILLIPS. (New York: Henry Holt and Co. 1957. Pp. viii, 480. $4.75.)

This well-organized and generally attractive book is an important addition to the existing textbooks in the field of consumer economics. It is scholarly in approach, and shows evidence of careful research; but it is not the pedantic type of text. In a field as broad as the economics of consumption where concepts are sometimes vague and values difficult to measure, Professor Phillips has done an excellent job of presenting specific facts, and organizing seemingly unrelated data into easily understood areas of discussion. The subject is presented from the consumer viewpoint and a reader-centered attitude is maintained throughout the work. Supporting material in the form of tables and charts is kept to a minimum and the statistics and factual information are up-to-date, pertinent, and well selected from government reports and surveys of leading organizations in economic and marketing research.

Part I deals with consumer demand and is highly technical, introducing a multitude of economic terms in the first chapter. The second chapter continues the discussion of economic theory in relation to the consumer. The interrelation between production and consumption is clearly explained but the treatment of the propensity to consume and income flow lacks clarity and the money-flow diagram seems unnecessarily complex. The chapter concludes with a very practical and thought-provoking discussion of consumer budgeting and the need for education along this line.

Part II, consisting of eight chapters, covers purchasing problems which the consumer has to meet. Chapter 3 is a comprehensive presentation of the

economic theory of price determination. Chapter 4, dealing with nonprice competition, is less technical, although a large number of distributive systems are described in the eighteen pages. Chapters 5 through 10 discuss advertising, sales promotion, personal services, consumer credit, consumer aids, and wartime consumption. The text becomes progressively more interesting and informative. In fact the reader finds himself intrigued with descriptions of advertising devices and selling schemes. This material is handled with frank impartiality, analyzing without subjective comment the blessings and evils of modern organized selling.

Part III, discussing consumer interest in the political economy, is a new and effective approach to the consumer's stake in political-economic issues of our times. Chapters 11 through 16 are devoted to government services, housing programs, the farm problem, medical assistance, social security, and resource conservation. The consumer interest is skillfully linked to each of these areas by first describing the individual consumer activity and then showing the effects upon it of a particular governmental or social program. Chapter 17 leaves the domestic scene and describes the relations of the more important present-day aspects of international trade and finance to consumer affairs. The final chapter is an excellent comparative description of consumer welfare in communistic economies and in several foreign noncommunistic economies. In all of Part III Phillips has continued his unbiased attitude in presenting both sides of the issues.

With the exception of the technical discussion in the first three chapters, every consumer will find much of interest in the book, and it can be highly recommended for general reading as well as for the classroom.

Janet L. Weston

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Erratum

The review of *The Theory and Working of Union Finance in India*, by R. N. Bhargava, on page 740 of the September 1957 number of this *Review*, carried the imprint of George Allen and Unwin, London, but omitted the American publisher The Macmillan Company, New York.

TITLES OF NEW BOOKS

General Economics; Methodology

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CROWTHER, G. *The wealth and poverty of nations.* Three lectures delivered at Claremont College, 1956. (Claremont: Claremont College. 1957. Pp. 48. $2.75.)

DODD, J. H. AND HASEK, C. W. *Economics—principles and applications.* 3rd ed. (Cincinnati: South-Western Pub. 1957. Pp. x, 817. $6.)

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NOTES

Members who wish to make suggestions for officers of the American Economic Association for 1958-59 are invited to place names with James Washington Bell, secretary of the Association, for transmission to the Nominating Committee when appointed by the incoming President.

ANNOUNCEMENTS

The next closing date for receipt of proposals in the Social Science Research Program of the National Science Foundation is February 1, 1958. Proposals received by that date will be evaluated in the spring and grants will be approved in time for work to begin in the summer or fall of 1958. Inquiries about the program should be addressed to National Science Foundation, Washington 25, D.C.

The Advancement and Placement Institute has announced the publication of their first annual *World-Wide Graduate Award Directory*. This guide is devoted entirely to advanced graduate opportunities available to educators and scholars in the United States and provides a central reference source of graduate awards. Copies of the publication will be in college and public libraries or may be ordered from the Institute, Box 99E, Greenpoint Station, Brooklyn 22, N.Y., at $2.00 a copy.

The problems of furthering research in Marxism and Leninism on an international basis were the subject of a recent conference of scholars from European countries and the United States. The meeting, which was held in Amsterdam from August 1 to August 3, 1957, continued discussions that had begun in January of this year in Berlin. The conclusion reached in these discussions was that there is a need for intensifying objective scientific research activities in the field of Marxism and Leninism.

Deaths

Harry P. Bell, professor of economics at Dartmouth College, died March 31, 1957.

Sir Arthur Bowley died January 1957.

Eph A. Karelsen, of New York City, died May 1956.

William C. Kessler, head of the economics department of Colgate University, died August 30, 1957.

C. A. Kulp, dean of the Wharton School, University of Pennsylvania, died August 20, 1957.

Hazel Kyrk, professor emeritus of the University of Chicago, died August 8, 1957.

Maurice E. Moore, of Chicago, Illinois, died April 1, 1956.

Raymond B. Pinchbeck, of the University of Richmond, died February 4, 1957.

Arthur Spiethoff, of Tübingen, Germany, died April 4, 1957.

Norman Stocker, of Detroit, Michigan, died January 27, 1957.

Irving Tenner, of Chicago, Illinois, died December 25, 1956.

Adolph Ullman, of Cambridge, Massachusetts, died January 1, 1957.

Appointments and Reservations

Doris G. Adams has been appointed assistant professor of economics at the Pennsylvania State University.

Walter Adams has been reassigned to the Institute of Research on Overseas Programs, Michigan State University, for the current academic year.

Warren G. Adams has returned from teaching in Iraq to serve as assistant professor of economics at Swarthmore College.

Henry H. Albers, formerly of Iowa State College, has been appointed associate professor of management at the State University of Iowa.

Arthur J. Altmeyer, formerly U.S. Commissioner of Social Security, has been appointed lecturer in economics and social work at the University of Wisconsin for the current semester.

Carl T. Arlt is on leave from Oberlin College to spend the current year with the Division of Research and Statistics, Federal Reserve Board, in Washington.

J. L. Athearn, formerly of Ohio State University, has been appointed associate professor of insurance at the University of Florida.

Sanford L. Bacon, Jr. has been promoted to assistant professor of accounting in the Wharton School, University of Pennsylvania.

Nicholas Balabkins has been appointed assistant professor of economics at Washington and Jefferson College.

Robert E. Baldwin has been appointed associate professor in the department of economics, University of California, Los Angeles.

Marto Ballesteros has been appointed instructor in economics at the University of Chicago.

Warren E. Banks has been appointed instructor in the College of Business Administration, University of Arkansas.

Arnold L. Barrett, formerly of King College, has been appointed associate professor of economics in the School of Commerce and Business Administration, University of Alabama.

John F. Barron has been appointed assistant professor of economics at the University of California, Los Angeles.

Carlisle W. Baskin has been promoted to professor of economics, and appointed chairman of the department of economics, at Randolph-Macon College.

William R. Beaton, formerly of Ohio State University, has been appointed assistant professor of economics at the University of Georgia.

Mary Beeler, of Louisiana State University, has accepted a position with Dow Chemical Corporation, Baton Rouge, Louisiana.

J. F. Bell has been appointed chairman of the department of economics at the University of Illinois, succeeding H. K. Allen, who has returned to teaching and research.

Robert W. Bell has been appointed assistant professor of marketing in the College of Business Administration, University of Arkansas.

Arthur Benjamin, of New York University, has been appointed instructor in economics at Lehigh University.

Bernard Berelson has been appointed professor of behavioral sciences in the School of Business and in the Division of Social Sciences, University of Chicago.

Rexer Berndt has resigned from Kalamazoo College to accept a position as associate professor of economics at Arizona State College, Flagstaff.

Edwin Bishop has been appointed instructor in economics at Georgetown University.

James H. Blackman is on leave for the academic year from the University of South Carolina, to direct a study on the Soviet economy at the University of North Carolina under the auspices of the U.S. Air Force.

William T. Blaine, Jr. has been appointed instructor in insurance at the Wharton School, University of Pennsylvania.

Ronald Bodkin has been appointed instructor in economics at the Wharton School, University of Pennsylvania.

Joseph M. Bonin has been appointed instructor in economics at Louisiana State University.

Philip J. Bourque, formerly of Lehigh University, has accepted an appointment as associate professor in the College of Business Administration, University of Washington.

Raymond T. Bowman, formerly of the University of Pennsylvania, has been appointed professorial lecturer in the department of economics, Georgetown University.

Joseph F. Bradley has been promoted to professor of finance at the Pennsylvania State University.

J. Herman Brasseaux has been appointed instructor in accounting at Louisiana State University.

William L. Breit has been appointed instructor in economics at Michigan State University.

Dale G. Brickner, formerly of Cornell University, has been appointed lecturer in economics at Indiana University.

Andrew Brimmer has been appointed lecturer at The City College, New York City.

Edward L. Brink has been promoted to associate professor of marketing at the Wharton School, University of Pennsylvania.

Anthony J. Bryski, on leave from the Pennsylvania Department of Labor and Industry, is assistant professor of economics at Lehigh University.

Louis F. Buckley has been transferred to the Boston Regional Office of the U.S. Department of Labor, where he is serving as deputy regional director for the New England states.

Harvey C. Bunke has been promoted to associate professor in the College of Commerce, State University of Iowa.

Arthur E. Burns has resigned as dean of the School of Government, and has been appointed dean of the Graduate Council, George Washington University.

D. R. Burrus, formerly of the General Electric Company, is manager of marketing research at Texas Instruments, Dallas, Texas.

J. D. Butterworth has been appointed interim head of the department of marketing of the College of Business Administration, University of Florida.

Gilbert R. Bythewood has been appointed assistant professor at the University of Houston.

James E. Caldwell has been appointed instructor in business administration at Louisiana State University.

Rondo E. Cameron has been promoted to associate professor of economics and history at the University of Wisconsin.

Vincent Cangelosi has been promoted to assistant professor of general business in the College of Business Administration, University of Arkansas.

Philan D. Capen has been appointed instructor, geography and industry department, Wharton School, University of Pennsylvania.

T. G. Carpenter has been appointed instructor in economics at the University of Florida.

Troy J. Cauley is on leave from Indiana University this year to accept a visiting professorship of economics at the University of Texas.

K. C. Chacko, economist for the Consulate General of India in New York, is also teaching at The City College.

Lester Chandler has been appointed lecturer in finance at the Wharton School, University of Pennsylvania.

Pik Chau has been appointed assistant professor of economics and business administration at the University of Chattanooga.

Walter A. Chudson, of the United Nations Bureau of Economic Affairs, is on a temporary mission as economic adviser to the U.N. Advisory Council for the Trust Territory of Somaliland under Italian Administration.

Eugene Clark, formerly of Ohio Wesleyan University, has been appointed dean of the School of Economics and Business at the State College of Washington.

Jere Clark has been promoted to associate professor of economics at the University of Chattanooga.

Paul G. Clark has been granted a two-year leave of absence from Williams College to accept a temporary position with the economics division of the RAND Corporation, Santa Monica, California.

Sherrill Cleland has been named chairman of the department of economics and business administration and has been promoted to associate professor at Kalamazoo College.

Edwin K. Clickner has been appointed assistant professor of economics at Presbyterian College, Clinton, South Carolina.

R. S. Cline has been appointed assistant dean of the College of Business Administration, University of Florida.

Robert W. Clower, of the State College of Washington, has been appointed associate professor of economics at Northwestern University.

Harry E. Coggshall has been appointed instructor in finance at the Wharton School, University of Pennsylvania.

Jerome B. Cohen has been named assistant dean in charge of graduate studies at The City College, New York City.

John R. Coleman is assistant head of the department of economics at Carnegie Institute of Technology.

Robert Collier has been promoted to associate professor of economics at Occidental College.

Carolyn C. Comings has been appointed research instructor in the Industrial Research Unit, Wharton School, University of Pennsylvania.

Mary Conlon has been appointed lecturer at The City College, New York City.

John Cornwall has been appointed instructor in economics at Tufts University.

Kenneth D. Courtney has been appointed assistant professor of marketing at Los Angeles State College.

Dudley J. Cowden, of the University of North Carolina, has received a Kenan leave of absence for the spring semester to lecture at the University of London.

John F. Cox II has been appointed instructor in accounting at the Wharton School, University of Pennsylvania.

Jean Crockett has been promoted to assistant professor of finance at the Wharton School, University of Pennsylvania.

Howard A. Cutler has been appointed coordinator of the general education program at the Pennsylvania State University.

Richard M. Cyert is assistant head of the department of industrial management, Carnegie Institute of Technology.

Robert L. Darcy has been appointed assistant professor of economics at Oregon State College.

John L. Davidson has been appointed instructor in business administration at Louisiana State University.

Kingsley Davis, Director of the International Urban Research Office, University of California, has been elected President of the American Sociological Society for 1959.

Carl Dennler, Jr., formerly at the University of Maine, has been appointed assistant professor of accounting at West Virginia University.

Thomas Dernberg has been appointed assistant professor of economics at Purdue University.

Frank T. de Vyver, recently returned from a Fulbright lectureship in Australia, has been named chairman of the department of economics and business administration at Duke University.

Robert L. Dickens has been promoted to associate professor of accounting in the department of economics and business administration, Duke University.

Oliver D. Dickerson has resigned as associate professor of insurance at the Wharton School, University of Pennsylvania.

William P. Dillingham has been promoted to professor of economics at Florida State University.

Sergei Dobrovolsky, formerly of Wayne State University, has accepted a position as professor and chairman of the department of economics at Rensselaer Polytechnic Institute.

James O. G. Drake has been appointed instructor in finance at the Wharton School, University of Pennsylvania.

James A. Drayton has been appointed lecturer at The City College, New York City.

Robert R. Edminster has been appointed lecturer in economics, University of California, Berkeley.

Leo M. Egand, formerly of Voorhees, Walker, Smith and Smith, has joined the permanent staff of the Cleveland Metropolitan Services Commission.

Philip Elkin, of the University of Pennsylvania, has been appointed assistant professor of economics in the School of Business and Public Administration, Temple University.

Hugh R. Elliott, formerly of the University of Chicago, has been appointed instructor in economics at Wayne State University.

Bert E. Elwert has been appointed administrative assistant to the director, Bureau of Business Research, and faculty lecturer in business administration, School of Business, Indiana University.

Emerson C. Erb, Jr. has been appointed faculty lecturer in accounting, School of Business, Indiana University.

Joseph R. Ewers has been appointed faculty lecturer in business administration, School of Business, Indiana University.

Grant N. Farr has been promoted to associate professor of economics, and has been elected to a 3-year term as chairman of the department, University of Colorado.

Alvin F. Farrar has been appointed instructor in economics at the Wharton School, University of Pennsylvania.

Martin T. Farris, formerly of Ohio State University, has been appointed assistant professor of economics and transportation at Arizona State College at Tempe.

Edward Fei has accepted a post with the Harvard-Pakistan Planning Board Project, and is now serving as economic advisor to the government of East Pakistan.

William J. Fellner of Yale University has been appointed to the Irving Fisher Research Professorship in Economics for 1957-58, and is spending the year at Cambridge University.

Eberhard Fels has been reappointed visiting assistant professor for the current academic year in the department of economics, University of California, Berkeley.

W. J. Feuerlein has accepted a position with the Ralph M. Parsons Company of Los Angeles as consulting economist on a project in Pakistan.

Paul Fisher has been appointed lecturer in labor and industrial relations at Georgetown University.

Waldo E. Fisher has been appointed professor emeritus of industry at the Wharton School, University of Pennsylvania.

Leslie Fishman has been appointed assistant professor of economics at the University of Colorado.

Lyle C. Fitch is on leave from the Institute of Public Administration to serve as First Deputy City Administrator of New York City.

E. I. Fjeld of The City College, New York City, is visiting professor of accounting at Los Angeles State College during the current academic year.

Edwin B. Flippo, formerly of Miami University, has accepted a position as associate professor of management at Los Angeles State College.

William A. Forbes has been appointed instructor in economics at the School of Business and Public Administration, Temple University.

James W. Ford, of Vanderbilt University, has been appointed associate professor of economics at Ohio State University.

Lawrence E. Fouraker has been promoted to professor of economics at the Pennsylvania State University.

Harold G. Fraine, University of Wisconsin, is a member of the Wisconsin group helping to develop work in economics at the University of Gadjah Mada, Djogjakarta, Indonesia.

Andrew G. Frank has been appointed lecturer in economics at Michigan State University.

Arthur Freedman has been appointed lecturer in finance at the Wharton School, University of Pennsylvania.

Cedric V. Fricke has been appointed instructor in economics at Wayne State University.

Edward E. Furash has been appointed instructor in the department of marketing and foreign commerce, Wharton School, University of Pennsylvania.

Paul Garfield, formerly of Miami University, is now employed by Foster Associates, public utility consultants, Washington, D.C.

Morris E. Garnsey is at Harvard University on a Ford Foundation research fellowship. He recently served as special consultant to the Governor of Colorado in forming policy for the newly created Department of Natural Resources.

Leonard J. Garrett has been appointed research instructor in industry at the Wharton School, University of Pennsylvania.

Roth Gatewood has been appointed instructor in business administration in the School of Business, University of Kansas.

T. W. Gavell, formerly at the University of Wisconsin, has been appointed assistant professor of economics at West Virginia University.

Franz Gehrels, of Indiana University, has been awarded a Fulbright lectureship for 1957-58 at the University of Mainz.

A. L. Geisenheimer has retired from the University of South Carolina.

John M. Gersting has been appointed director of the department of economics and transportation, School of Business, Economics, and Government at John Carroll University.

James Gilbert has been appointed lecturer at The City College, New York City.

Floyd E. Gillis has been appointed associate professor of economics and industrial management at Purdue University.

Meredith B. Givens, of the New York State Department of Labor, is serving as executive director of the New York State Interdepartmental Committee on Low Incomes.

J. B. Glassburner, of the University of California, Davis, is a member of the California Field Staff, University of Indonesia, Djakarta.

Gerald J. Glasser has been promoted to assistant professor of economics at New York University.

Jay Goldfarb has been appointed instructor in statistics at the Wharton School, University of Pennsylvania.

Gustavo R. Gonzalez is serving as research economist in the Division of Agricultural Economics, Ministry of Agriculture, Commerce and Industries, Republic of Panama.

Charles S. Goodman has been promoted to professor of marketing at the Wharton School, University of Pennsylvania.

Thurston H. Graden has been appointed instructor in economics in the School of Business and Public Administration, Temple University.

Warren S. Gramm has been promoted to assistant professor of economics and has been appointed acting chairman of the department of economics at the University of California, Davis.

William D. Grampp, of the University of Illinois in Chicago, has been appointed visiting professor of economics for the first semester at the University of Wisconsin.

D. H. Granbois, formerly of the University of Illinois, has been appointed instructor in marketing at the University of Florida.

David Granick has been appointed assistant professor of economics at Carnegie Institute of Technology.

Melvin L. Greenhut has been appointed professor of economics at Florida State University.

Paul M. Gregory has been promoted to professor in the department of economics, School of Commerce and Business Administration, University of Alabama.

John A. Gronouski, formerly of the University of Wisconsin, has been appointed assistant professor of economics at Wayne State University.

Eleanor M. Hadley has been appointed associate professor of economics at Smith College.

Ivan Hall has been appointed instructor in the College of Business Administration, University of Arkansas.

Morris Hamburg has been promoted to associate professor of statistics at the Wharton School, University of Pennsylvania.

Daniel C. Hamilton has been appointed lecturer in economics at the Wharton School, University of Pennsylvania.

Arthur W. Hanson has retired from the faculty of the Harvard Business School, and is engaged in private business in Boston.

John S. Harlow has been appointed assistant professor in the College of Commerce, State University of Iowa.

James Harrington, Jr., formerly of Southern Methodist University, has been appointed assistant professor, College of Business Administration, University of Georgia.

C. Lowell Harriss is serving as consultant on state taxation to the Temporary State Commission on the Constitutional Convention, State of New York.

Joseph R. Hartley has been appointed assistant professor of transportation, School of Business, Indiana University.

Rasool M. H. Hashimi has been appointed lecturer in economics at Michigan State University.

Father Gerard Hebert is teaching courses in labor economics at McGill University.

Harold J. Heck, on leave from Tulane University, is serving as commercial attaché at the American Embassy in Paris.

Bruce C. Hemer has been appointed instructor in insurance at the Wharton School, University of Pennsylvania.

William M. Hench has been promoted to professor of economics at the Pennsylvania State University.

John P. Henderson, on leave from the University of Pittsburgh, is visiting associate professor in the Bureau of Economic and Business Research, University of Illinois. He is also executive editor of *Current Economic Comment*, published by the Bureau.

John S. Henderson has been promoted to the rank of professor in the department of economics in the School of Commerce and Business Administration, University of Alabama.

Edward S. Herman has been promoted to associate professor of economics at the Pennsylvania State University.

O. E. Heskin, who served with the State Department in Egypt for two years, has returned to the University of Florida as professor of economics.

Forest G. Hill has resigned from the University of California, Berkeley, to accept a position as associate professor at the University of Buffalo.

Seymour Himmelstein has been appointed lecturer at The City College, New York City.

L. Gregory Hines, of Dartmouth College, has served as economic consultant to the United States Public Health Service for the past year.

Abraham Hirsch is on leave from the College of William and Mary for the current academic year to teach economics at Robert College, Istanbul.

Stanley C. Hollander has been promoted to associate professor of marketing at the Wharton School, University of Pennsylvania.

William C. Hollinger has been appointed assistant professor of economics at Williams' College.

Oswald Honkalehto, formerly of Massachusetts Institute of Technology, is now senior research fellow in economics at Carnegie Institute of Technology.

Calvin B. Hoover has resigned as chairman of the department of economics and business administration, Duke University.

John K. Horner has been appointed lecturer in business and economics at the University of Maine.

Willard Horwich has been appointed assistant professor of accounting at Los Angeles State College.

Wayne E. Howard has been promoted to assistant professor of industry at the Wharton School, University of Pennsylvania.

Willard Howard has been appointed instructor in economics at the University of Wyoming.

John H. Huber, formerly at Syracuse University, is serving as an economic and program analyst with the U.S. Operations Mission (International Cooperation Administration) in Phnom Penh, Cambodia.

J. R. T. Hughes is on leave from Purdue University for the current academic year to serve as visiting lecturer in the economics department at Columbia University.

Fred C. Hung, formerly of Harvard University, has accepted an appointment as acting assistant professor of economics at the University of California, Davis.

John M. Hunter has been named acting head of the department of economics, Michigan State University.

Clyde L. Irwin has been appointed instructor in commerce at the University of Kentucky.

Frank H. Jackson has been appointed assistant professor of economics at Florida State University.

Arthur T. Jacobs, Director of Administration of the Union of American Hebrew Congregations, has also been appointed Administrative Secretary.

Henry R. Jaenicke has been appointed instructor in accounting at the Wharton School, University of Pennsylvania.

Ralph James has been appointed instructor in the Industrial Relations Section, Massachusetts Institute of Technology.

Joel E. Jensen has been appointed instructor in industry at the Wharton School, University of Pennsylvania.

David B. Johnson, formerly with the Atomic Energy Commission, has been appointed assistant professor of economics at the University of Wisconsin.

Dudley W. Johnson has been promoted to assistant professor of economics at Lehigh University.

Margaret Johnson has been appointed instructor in the College of Business Administration, University of Arkansas.

William E. Jones is an instructor in accounting in the School of Business Administration, University of South Carolina.

Stanley Kaish has been appointed instructor in marketing and foreign commerce at the Wharton School, University of Pennsylvania.

Benjamin J. Katz has been appointed associate professor of economics at New York University.

Robert A. Kennedy has been appointed assistant professor of finance in the College of Business Administration, University of Arkansas.

Charles C. Killingsworth has resigned as head of the department of economics to become director of the Labor and Industrial Relations Center, Michigan State University.

Robert L. King, formerly of Michigan State University, is assistant professor of marketing in the School of Business Administration, University of South Carolina.

Robert K. Kinsey, formerly of Columbia University, has been appointed instructor in the department of economics, Rutgers University.

Himy B. Kirshen, formerly of the University of Maine, has been appointed dean of the School of Business Administration at the University of Massachusetts.

Philip A. Klein, on leave from the Pennsylvania State University, is with the National Bureau of Economic Research.

Sidney Klein, formerly of Columbia University, has been appointed assistant professor in the department of economics, Rutgers University.

Frank H. Knight, of the University of Chicago, will be the inaugural visiting scholar at the Thomas Jefferson Center for Political Economy, University of Virginia, from January through June 1958.

Ernest Kohn has been appointed lecturer at The City College, New York City.

Richard F. Kosobud has been appointed instructor in economics at the Wharton School, University of Pennsylvania.

Walter Krause, of the International Cooperation Administration in Washington, was a member of the U. S. Delegation to the Colombo Plan Conference, held in Saigon, Viet Nam, in October.

Juanita M. Kreps has been appointed visiting assistant professor of economics in the department of economics and business administration, Duke University.

Theodore J. Kreps, professor in the Graduate School of Business, Stanford University, was awarded an honorary degree of Doctor of Laws by the University of Colorado on August 24, 1957.

Joseph Krol has been appointed professor of industrial engineering at Georgia Institute of Technology.

Ethel Kroopnick has been appointed instructor in economics at Wayne State University.

Sherman Krupp has been appointed instructor in economics at the University of Pittsburgh.

Robert Kvam has accepted a position as assistant professor of accounting at Michigan State University.

Paul G. LaGrone has been appointed associate professor of accounting in the College of Business Administration, University of Arkansas.

Harry H. Landreth, Jr., has been appointed instructor in economics at Miami University, Oxford, Ohio.

Raymond R. Lauer is on the staff of Mt. St. Mary's College, Emmitsburg, Maryland.

Hugh E. Law is instructor in economics at California State Polytechnic College, San Luis Obispo.

Preston P. LeBreton, formerly of the University of Detroit, has been appointed associate professor and head of the department of management and marketing at Louisiana State University.

Stewart Lee has been appointed chairman of the department of economics and business administration, Geneva College.

George Leibowitz has been appointed instructor in accounting in the Wharton School, University of Pennsylvania.

Jack Leonard has been appointed assistant professor of business administration at the University of Arizona.

Paul H. Levenson has been appointed assistant professor of business administration at Clark University.

Richard K. Lewis has been appointed research associate in the School of Business, University of Kansas.

Richard Lindhe has been appointed instructor in accounting, School of Business, University of Chicago.

Robert Lindsay, on leave from the Federal Reserve Bank of New York for the current academic year, is visiting associate professor of banking at New York University.

Samuel M. Loescher, of Indiana University, has a Fulbright lectureship for 1957-58 at the Norwegian School of Business, Bergen, Norway.

Victor M. Longstreet has resigned from the Federal Reserve Bank of St. Louis to become head of the management research department, Schering Corporation, Bloomfield, N.J.

John R. Lowry has been appointed instructor in marketing and advertising in the School of Business Administration, University of Pittsburgh.

Henry Ludmer has been appointed professor of business administration at Roosevelt University, Chicago.

Robert Lyon has been appointed assistant professor of economics in the School of Business and Public Administration, Temple University.

David MacEachron has been appointed lecturer at The City College, New York City.

Owen J. Mahon has been appointed instructor in accounting in the Wharton School, University of Pennsylvania.

Lawrence F. Mansfield has been appointed assistant professor of economics at Florida State University.

F. Ray Marshall has been appointed associate professor of economics at Louisiana State University.

Daniel Marx, Jr., has returned to Dartmouth College as chairman of the department of economics after having served a year as a senior staff member of the President's Council of Economic Advisers.

B. E. Matecki has returned to Lynchburg College after being at the Center for Research on World Political Institutions, Princeton University.

C. A. Matthews has been appointed interim head of the department of finance and insurance, College of Business Administration, University of Florida.

John M. Mattila has been promoted from assistant professor to associate professor of economics at Wayne State University.

Joseph Mayer has retired from the chairmanship of the department of economics at Miami University, Oxford, Ohio.

Joseph L. McAuliff has been appointed instructor in the College of Business Administration, University of Arkansas.

John McCalley, formerly with the Federal Reserve Bank of New York, has been appointed lecturer at The City College, New York City.

Elzy V. McCollough has been promoted to associate professor of accounting at Louisiana State University.

Stephen L. McDonald, formerly with the Humble Oil and Refining Company, has been appointed associate professor and head of the department of finance at Louisiana State University.

Duncan M. McDougall has been appointed assistant professor of economics at Purdue University.

John S. McGee has been appointed associate professor of government and business, School of Business, University of Chicago.

William J. McKinstry has been appointed assistant professor of economics at Miami University, Oxford, Ohio.

Frank C. McLaughlin, Jr., has been appointed instructor in finance in the Wharton School, University of Pennsylvania.

William McLaughlin has been appointed instructor in the College of Business Administration, University of Arkansas.

David C. McMurtry has been appointed assistant professor at the University of Kentucky.

Paul Medow, of Columbia University, has been appointed instructor in the department of economics, College of Arts and Sciences, Rutgers University.

Alexander Melamid has been appointed associate professor at New York University. He is also visiting professor in the Graduate Faculty of the New School for Social Research.

David C. Melnicoff has been appointed lecturer in finance at the Wharton School, University of Pennsylvania.

Allan Meltzer, formerly of the University of Pennsylvania, is now assistant professor of economics at Carnegie Institute of Technology.

H. Lawrence Miller, Jr., has been appointed assistant professor in the department of economics, University of California, Los Angeles.

Reuben Miller, of Ohio State University, is acting assistant professor of economics at Oberlin College for the current academic year.

Michael S. Mirski has been appointed general economist in the economic studies branch, Division of Program Analysis, Social Security Administration.

C. Clyde Mitchell has resigned from the University of Nebraska to join the staff of Technical Assistance Experts of the Food and Agriculture Organization. His present assignment is to assist the Ministry of Economics of Mexico on national and regional economic planning.

William G. Modrow has been appointed assistant professor in the department of economics, Texas A. and M. College.

Albert Mossawir has been appointed instructor in economics at Wesleyan University.

David C. Motter has been appointed lecturer in economics in the Wharton School, University of Pennsylvania.

Roland T. Mullins has been appointed instructor in the College of Business Administration, University of Arkansas.

Francis Murans has been appointed instructor in economics at Loyola University, Chicago, Illinois.

J. Carter Murphy has been promoted to associate professor of economics at Washington University.

John J. Murphy has been appointed assistant professor of economics in the Catholic University of America.

Mary E. Murphy has been promoted to associate professor of accounting at Los Angeles State College.

Donald S. Murray has been promoted to professor of statistics in the Wharton School, University of Pennsylvania.

John Muth, formerly of the University of Chicago, is now senior research fellow in economics at Carnegie Institute of Technology.

Charles G. Myers has been appointed assistant director, Bureau of Personnel Relations and Placement and faculty lecturer in management in the School of Business, Indiana University.

John G. Myers is a member of the staff of the New York State Interdepartmental Committee on Low Incomes.

James I. Nakamura has been appointed lecturer at The City College, New York City.

Erwin E. Nemmers, formerly of the University of Wisconsin, has been appointed associate professor of business administration at Northwestern University.

Mabel Newcomer retired from the department of economics, Vassar College, in June 1957.

Monroe Newman has been promoted to associate professor of economics at the Pennsylvania State University.

R. W. Niemela, formerly of Massachusetts Institute of Technology, has been appointed assistant professor of management, University of Florida.

Winston Oberg is associate professor of business in the College of Business and Public Service, Michigan State University.

John L. O'Donnell has been appointed acting director of the Bureau of Business and Economic Research, Michigan State University.

Paul G. O'Leary has been appointed instructor in finance in the Wharton School, University of Pennsylvania.

Russell Olson, who has been participating in the Ohio State University program in India, will remain for two years. He will be in charge of the group helping to establish agricultural colleges in northern India.

James R. Omps has been appointed instructor in accounting in the School of Business Administration, University of Pittsburgh.

Earle W. Orr has resigned from Purdue University to accept a position in the Transportation Research Center, Northwestern University.

Thomas J. Orsagh, of the University of Pennsylvania, has been appointed instructor in statistics at Lehigh University.

Wyn F. Owen has been appointed associate professor of economics, University of Colorado.

Robert W. Ozanne has been promoted from assistant professor to associate professor of economics at the University of Wisconsin.

Thomas H. Park has been appointed instructor in economics at Vanderbilt University.

Russell C. Parker has been appointed instructor in economics at Michigan State University.

Burke A. Parsons, on leave from Texas College of Arts and Industries, is lecturer in economics at the University of Texas in the current academic year.

Robert D. Pashek has been promoted to associate professor of transportation at the Pennsylvania State University.

Robert W. Paterson, of the University of South Carolina, has been selected staff study director of the South Carolina legislature's corporate income tax study committee.

Samuel H. Patterson has been named professor emeritus of economics, Wharton School, University of Pennsylvania.

Peter Payne has been appointed visiting lecturer at the Johns Hopkins University for the February 1958 term.

Guy Peden has been appointed instructor in the College of Business Administration, University of Arkansas.

Adam A. Pepelasis has resigned from the University of Buffalo to accept an appointment as assistant professor of economics at the University of California, Davis.

Frank C. Pierson is on leave of absence from Swarthmore College to conduct a study of business education for the Carnegie Corporation.

Robert E. Pierson has been appointed assistant professor of economics at Purdue University.

I. James Pikl has been appointed instructor in economics at Vanderbilt University.

Howard S. Piquet, of the Legislative Reference Service of the Library of Congress, is visiting professor at the University of Washington in the autumn quarter.

Murray E. Polakoff has been promoted from assistant professor to associate professor of economics at the University of Texas.

Michael V. Posner, formerly of the Oxford Institute of Statistics, is visiting lecturer in economics at Wesleyan University.

Olin S. Pugh, of the University of South Carolina, has been named assistant staff director of the South Carolina legislature's corporate income tax study committee.

Doris Pullman has been appointed instructor at The City College, New York City.

Roy Radner has been appointed acting associate professor of economics and statistics in the department of economics, University of California, Berkeley.

Chester Rapkin has been appointed associate professor of finance in the Wharton School, University of Pennsylvania.

J. C. Ray is assistant professor of accounting at Los Angeles State College.

John F. Reinboth, formerly of Northwestern University, has been appointed associate professor of business statistics at Long Beach State College.

Jess L. Rhodes has been appointed instructor in the College of Business Administration, University of Arkansas.

J. Henry Richardson, professor of industrial relations at the University of Leeds, England, is a visiting professor in the Industrial and Labor Relations School, Cornell University.

Clara Robb has been appointed instructor in the College of Business Administration, University of Arkansas.

Robert A. Robertson has been appointed assistant professor of economics in the College of Business Administration, University of Arkansas.

D. M. Robinson has been appointed assistant professor of management in the College of Business Administration, University of Arkansas.

Sam Rosen has been appointed associate professor of economics at the University of New Hampshire.

Nathan Rosenberg has been appointed assistant professor of economics in the Wharton School, University of Pennsylvania.

David F. Ross has been appointed associate professor of economics at Florida State University.

Lawrence I. Ross has been appointed instructor in industry in the Wharton School, University of Pennsylvania.

Melvin Rothbaum has been appointed assistant professor in the department of economics, University of California, Los Angeles.

Seymour Sacks, formerly of the University of Vermont, is economist-in-charge, Cleveland Metropolitan Services Commission.

George G. Sause has been appointed acting head of the economics department of Lafayette College.

Lloyd Saville has been promoted to professor of economics and named director of undergraduate studies in the department of economics and business administration, Duke University.

Eldon L. Schafer has been appointed instructor in business organization and management in the College of Business Administration, University of Nebraska.

Eric Schenker has been appointed lecturer in economics at Michigan State University.

Joseph Scherer has been appointed lecturer at The City College, New York City.

James R. Schlesinger has been on leave from the University of Virginia during the fall semester to lecture at the Naval War College.

Wilson E. Schmidt has been promoted to associate professor of economics at the George Washington University.

Martin Schnitzer has been promoted to assistant professor of economics in the College of Business Administration, University of Arkansas.

Karl W. H. Scholz has been appointed professor emeritus of economics, Wharton School, University of Pennsylvania.

Tibor Scitovsky has been appointed visiting research professor for the spring 1958 term and professor of economics beginning July 1958, at the University of California.

Martin Segal has been appointed assistant professor of economics at Williams College.

Celestino Segni has been appointed fellow-by-courtesy at the Johns Hopkins University for the current academic year.

Lawrence Senesh has been appointed professor of economic education in the economics department, Purdue University.

Carol W. Shaffer has been appointed instructor in economics at Michigan State University.

Milton Shapiro has been appointed analyst in the market research department of American Electronics, Inc., Los Angeles, California.

Robert P. Sharkey has been appointed assistant professor of economics at the University of South Carolina.

Robert P. Shay has been appointed head of the department of business, economics and sociology at the University of Maine and has been promoted to the rank of professor of economics.

Richard B. Sheridan has been promoted from assistant professor to associate professor of economics at the University of Kansas.

Tadeusz A. Siedlik has been appointed assistant professor of business and economics at the University of Maine.

Sidney I. Simon has been promoted to associate professor of economics at Rutgers University.

Barbara Simpson has been reappointed acting instructor in economics at the College of William and Mary for the current academic year.

G. R. Sims, formerly associated with Chandler & Rudd Co., Cleveland, Ohio, has been appointed assistant professor of marketing, University of Florida.

Jack W. Skeels has been appointed assistant professor in the department of economics, Michigan State University.

Edmund A. Smith has been appointed dean of the College of Business Administration, University of Portland, Oregon.

R. Elberton Smith, of the Office of Military History, U. S. Army, has accepted an appointment as visiting professor of economics for 1957-58 at Indiana University.

H. Wayne Snider has been appointed assistant professor of insurance in the Wharton School, University of Pennsylvania.

Eleanor M. Snyder, recently of the Bureau of Labor Statistics, is now a member of the staff of the New York State Interdepartmental Committee on Low Incomes.

Gerald G. Somers, formerly of the University of West Virginia, has been appointed associate professor of economics at the University of Wisconsin.

Julius H. Spalding has been promoted from instructor to assistant professor of economics in the School of Commerce, New York University.

Daniel L. Spencer has resigned from the American University to accept an appointment as associate professor of economics at Southern Illinois University.

Charles E. Staley has been promoted from instructor to assistant professor of economics at the University of Kansas.

W. J. Stankiewicz, formerly of the Department of Economics, Government of Ontario, has been appointed assistant professor in the department of economics and political science, University of British Columbia.

Harry Stark, of the University of Miami, has been on a Fulbright assignment in Argentina in the past summer and fall.

Elroy J. Steele has been appointed assistant professor of economics at Washburn University, Topeka, Kansas.

Irwin Stelzer has been appointed lecturer at The City College, New York City.

R. R. Sterling, formerly of the University of Denver, has been appointed instructor in accounting at the University of Florida.

William R. Stevenson has been appointed instructor in the marketing and foreign commerce department of the Wharton School, University of Pennsylvania.

Marion Stever has been appointed instructor in economics at Hobart College.

Jacob Stockfisch, formerly of the University of Wisconsin and recently with the RAND Corporation, has been appointed associate professor in the department of business administration, University of California, Los Angeles.

Frederic Stuart has been appointed lecturer at The City College, New York City.

Joseph Sulkowski has retired from teaching at the Catholic University of America where he was associate professor of economics.

Edward Sussna has resigned from Lehigh University to accept an appointment as assistant professor in the department of industry, School of Business Administration, Pittsburgh University.

Eugene L. Swearingen has been appointed dean of the Division of Business, Oklahoma State University.

Boris C. Swerling has been promoted to professor and economist, Food Research Institute, Stanford University. He is continuing to serve on the staff of the President's Council of Economic Advisers, on leave, in 1957-58.

Ram Tarneja has been appointed assistant professor of economics at Duquesne University.

Lloyd Taylor has been appointed instructor in the College of Business Administration, University of Arkansas.

George W. Thatcher has been named chairman of the department of economics, Miami University, Oxford, Ohio.

Ralph L. Thomas has been appointed instructor in economics for the current academic year at the University of Pittsburgh.

Richard S. Thorn is an economist in the Research and Statistics Department of the International Monetary Fund.

Gene B. Tipton, formerly of the University of California, Riverside, has been appointed assistant professor of economics at Los Angeles State College.

William D. Torrence has been appointed instructor in business organization and management in the College of Business Administration, University of Nebraska.

Leland E. Traywick has been promoted to professor of economics and has also been named assistant dean of the College of Business and Public Service, Michigan State University.

Robert Triffin is on leave from Yale University this year to serve as consultant to the Organisation for European Economic Co-operation in Paris.

L. Reed Tripp is serving as coordinator of a field group organized by the department of economics of the University of Washington and sponsored by the Ford Foundation. The group is working with the faculty of economics at Gadjah Mada University, Indonesia on the development of a teaching and research program in economics at the university.

Wendell P. Trumbull, of New York University and the University of Mississippi, has been appointed professor of accounting at Lehigh University.

Joseph Tryon, of the Federal Reserve Board, has been appointed lecturer in the department of economics, Georgetown University.

Bernard Udis has been appointed assistant professor in the department of industry, School of Business Administration, University of Pittsburgh.

Brian R. Van Arkadie has been appointed instructor in economics at Dartmouth College.

Xavier H. Verbeck has been appointed instructor in economics at Michigan State University.

Douglas Vickers has been appointed assistant professor of finance in the Wharton School, University of Pennsylvania.

V. H. Vincent, formerly of the University of Tennessee, has been appointed professor of accounting at West Virginia University.

James M. Walker, of the University of North Carolina, has been appointed assistant professor of economics at the University of Georgia.

Howard A. Ward has resigned as senior economist with the Chrysler Corporation to accept an appointment as associate professor of economics and associate director of the Institute for Business Services at the University of Detroit.

William E. Warrington has been promoted to professor of finance in the Wharton School, University of Pennsylvania.

Ralph J. Watkins, formerly director of research at Dun & Bradstreet, has been appointed director of economic studies at the Brookings Institution.

Gladys F. Webbink has joined the staff of the New York State Interdepartmental Committee on Low Incomes.

Alma B. Weber has been appointed instructor in economic history in the School of Commerce and Business Administration of the University of Alabama.

Dale H. Weeks has resigned from Nebraska Wesleyan to become associate professor of economics at Northern Illinois University.

Irwin Weinstock has been appointed instructor in the College of Business Administration, University of Arkansas.

Burton A. Weisbrod, of Carleton College, has been appointed instructor in economics at Washington University.

Lawrence L. Werboff has been appointed assistant professor of economics at the Pennsylvania State University.

James E. Wert has resigned from Lehigh University to accept a position as financial economist with the Federal Reserve Bank of Cleveland.

David A. West has been appointed assistant professor of business administration and economics at Union University, Jackson, Tennessee.

R. H. West has been appointed assistant professor of management in the College of Business Administration, University of Arkansas.

Richard Westebbe, of the Federal Reserve Board, is lecturer at Georgetown University.

Bartin Westerlund, formerly of the University of Miami, has been appointed assistant professor of marketing in the College of Business Administration, University of Arkansas.

Clifton R. Wharton, Jr. has been appointed executive associate with the Council on Economic and Cultural Affairs Inc., New York City.

Phillip A. Wicky has been appointed instructor in economics in the Wharton School, University of Pennsylvania.

Robert E. Will, formerly of the University of Massachusetts, has been appointed assistant professor of economics at Carleton College.

Frederick Williams has been promoted from instructor to assistant professor in the department of economics, University of Illinois.

John H. Williams, now retired from Harvard University, has been appointed William L. Clayton Professor of International Economic Affairs in the Fletcher School of Law and Diplomacy, Tufts University, for the current year.

Marvis Williams has been appointed associate professor of accounting in the department of economics of Carleton College.

Wendell N. Williams, formerly of the University of Arizona, has been appointed assistant professor of accounting in the College of Business Administration, University of Georgia.

W. V. Wilmot, Jr., formerly of the University of Wisconsin, is now assistant professor of finance at the University of Florida.

Howard Wilson, formerly of the University of Chicago, is now assistant director of the Management Center, Marquette University, and is also assistant professor of management.

Glen Wing has been promoted to associate professor of general business in the College of Business Administration, University of Arkansas.

Willis J. Winn has been promoted to professor of finance in the Wharton School, University of Pennsylvania.

Edwin E. Witte, emeritus professor of economics at the University of Wisconsin, distinguished visiting professor in the department of economics, Michigan State University for the current year.

Harold A. Wolf has resigned from Lehigh University to join the staff of the Prudential Life Insurance Co. as economist.

William Wolman has been appointed acting assistant professor of economics at the State College of Washington.